

### LABORATORY REPORT

Client:

GEOSYNTEC CONSULTANTS, INC.

Date of Report:

07/19/04

Address:

2100 Main Street, Suite 150

Date Received:

07/01/04

Huntington Beach, CA 92648

CAS Project No:

P2401397

Contact:

Mr. Mike Reardon

Purchase Order:

SB0202-31H

Client Project ID: Ascon LF/SB0202-31H

One (1) Tedlar Bag Sample labeled:

"PNL-F75-1-S"

The sample was received at the laboratory under chain of custody on July 1, 2004. The sample was received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time that it was received at the laboratory.

### Sulfur Analysis

The sample was analyzed for twenty sulfur compounds per modified SCAQMD Method 307-91 and ASTM D 5504-01 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Reviewed and Approved:

Reviewed and Approved:

Zheng Wang Analytical Chemist

Air Quality Laboratory

Wade Henton GC-VOA Team Leader Air Quality Laboratory

### RESULTS OF ANALYSIS

Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

PNL-F75-1-S

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401397

CAS Sample ID: P2401397-001

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Received: 7/1/04 Date Analyzed: 7/1/04 Time Analyzed: 10:58

Date Collected: 6/30/04

Time Collected: 15:35

Volume(s) Analyzed:

 $1.0 \, \text{ml(s)}$ 

D.F.=1.00

	T	Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
CIIO II		μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	13.5	12.0	5.51	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	20.9	7.80	6.71	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	JL
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: 26- Date: 71604

# RESULTS OF ANALYSIS Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

Method Blank

**Client Project ID:** 

Ascon LF/SB0202-31H

CAS Project ID: P2401397 CAS Sample ID: P040701-MB

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Collected: NA Time Collected: NA Date Received: NA Date Analyzed: 7/01/04

Time Analyzed: 09:50

Volume(s) Analyzed:

1.0 ml(s)

D.F.=1.00

	T	Result	MRL	Result	MRL	Data
G + G #	Commonad	Result	1,11,62			Qualifier
CAS#	Compound	μg/m³	$\mu g/m^3$	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	<u> </u>
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
	2-Ethylthiophene	ND	23.0	ND	5.00	
872-55-9 110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: R (- Date: Date: Page No.:

# Columbia Analytical Services, Inc. Sample Acceptance Check Form

	_			San	iple Acceptance Che	<b>ck Form</b> Work order:	p'	2401397		٠	
	GeoSyntec Con					WOIR OIGEI.		2101377			<del></del>
_	Ascon LF/SB02				Deta amanad:	7/1	/04	by:	SM		
S	Sample(s) receive	ed on: _	7/1/04		Date opened:  this form for custody seals is			-		ın indicatio	on of
<u>Vote:</u> This	form is used for all sar	nples rece	eived by CAS.	The use of	y be evaluated either at the re	squest of the client	or as red	uired by the me	ethod/SOP.		
ompliance	or nonconformity. The	iermal pre	servation and p	M WIII OIII	y be evaluated either at the re	quest of the enem	0. 45 . 4 4		<u>Yes</u>	No	N/A
	TV de Joseph	ala a a	utaida af aa	oler/Roy	9					$\boxtimes$	
1	Were custody se		uiside of co	JICI/ DOX	•		S	ealing Lid?			X
	Location of sea	_	· 1 1 19					J			X
	Were signature		e included?								$\times$
	Were seals inta		1	1						X	
	Were custody sea						S	ealing Lid?			X
	Location of sea	-			<u> </u>			cumg zaar			$\boxtimes$
	Were signature		te included?								$\boxtimes$
	Were seals inta		1	1 1	ide aliant gample ID9				X		
2					ith client sample ID?				X		
3	Did sample com								X		
4	Were chain-of-c								$\boxtimes$		
5					ee with custody papers?				$\boxtimes$		
6	Was sample vol								X		
7	Are samples wit					adhered to?					$\times$
8	Was proper tem				ion) of cooler at receipt NA	°C					
			Cooler Temp	-	NA NA	. ℃ ℃					
			Blank Temp	erature _	_	_	nform	ation?		$\boxtimes$	
9	Is pH (acid) pre	servatio	on necessary	, accord	ing to method/SOP or C	nrecerved')	11(0111)	2010111			X
					d samples are <b>pH</b> (acid)	preserved.					X
	Were <b>VOA via</b>	<u>is</u> check	ed for prese	nce/ause	nce of air bubbles? analyst check the samp	de nH and if ne	cessary	alter it?			X
						ne pri una <u>ii ne</u>	coour				X
10	Tubes:		ne tubes cap								X
			ey contain r								$\boxtimes$
11	Badges:				apped and intact? rated and individually ca	onned and intac	t?				$\times$
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Na San	Lab Sample ID		Requi	red	pН	VOA Heads	VC000000000000000000000000000000000000	Re	eceipt / Pres		
			рH		(as received, if required)	(Presence/Abso	nce)		Comme	nts	
P24013	97-001					NA					
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<b> </b>			<del> </del>								
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<u>L</u>											
Expla	in any discrepanci	es: (incl	lude lab sam	ple ID n	umbers):						

401397SR XLS - cooler - Page 1 of 1

7/1/04 9:44 AM

Page ( of

2665 Park Center Drive, Suite D Air Quality Laboratory

Simi Valley, California 93065 Phone (805) 526-7161

Columbia Analytical Services<sup>NC.</sup>

An Employee - Owned Company

(805) 526-7270

Fax

Analytical Service Request Chain of Custody Record

Additional Comments Pagorash Cooler / Blank (e.g., preservative or specific instructions) Comments Temp\_ CAS Project No. (xápa vsoupaga (1) pappuns Select Ang Ang Ang Ang Ang Select Ang Ang Ang Ang Ang Select Angunung Ang Select Angunung Ang Select Angunung A 0 Time: 6-30-04 Analysis Sort to S × Beach, CA Sample Volume (Liters) Flow Courroller, (Serial #) Received by: (Signature) Sampling Location for P.O. #/Billing Information SEC2.02.- 7114 Container ID (Serial #) Project Number SBCZCZ - 31 H Ascon UF ges Synter Type of Sample Sample Project Name A.30 14 16.13 Lab Sample No. Fax (744) 969.0820 Date: Emuil prieded on & gosyntec com 8 3 8 E 35 本/名 Time Collected Sampler (Sygnyffire) 2100 Main St HB, CA GROUPS Date Collected Clien/Address GeoSyntec Phone 714) 909-0800 PW-F75-1-8 Signatur Client Sample 1D M. Reavelow Relinquisherty; Contact

0938

Time:

11/04 Dales 1/1/04

Refeived by: (Signature)

5491

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Relingaished by: (Signature)

Relinquished by: (Signature)

Date:

Received by: (Signature)

COL #12 7/03



### An Employee - Owned Company

### LABORATORY REPORT

Client:

GEOSYNTEC CONSULTANTS, INC.

Date of Report:

07/19/04

Address:

2100 Main Street, Suite 150

Date Received:

07/01/04

Huntington Beach, CA 92648

CAS Project No:

P2401406

Contact:

Mr. Mike Reardon

Purchase Order:

Verbal

Client Project ID: Ascon LF/SB0202-31H

Five (5) Tedlar Bag Samples labeled:

"SF-STY1-U-S"

"SF-STY1-U-SR"

"SF-STY2-U-S"

"SF-STY1-C1-S"

"SF-STY2-C1-S"

The samples were received at the laboratory under chain of custody on July 1, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

# Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per modified SCAQMD Method 307-91 and ASTM D 5504-01 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Reviewed and Approved:

Reviewed and Approved:

Zheng Wang Analytical Chemist Air Quality Laboratory Wade Henton GC-VOA Team Leader Air Quality Laboratory

Page 1 of <u>ID</u>

# RESULTS OF ANALYSIS Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-STY1-U-S

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401406

CAS Sample ID: P2401406-001

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Received: 7/1/04
Date Analyzed: 7/1/04

Date Collected: 7/1/04

Time Collected: 09:34

Time Analyzed: 16:53

Volume(s) Analyzed:

1.0 ml(s)

D.F.=1.00

	T	Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
CALS #	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	18.4	7.00	13.2	5.00	
463-58-1	Carbonyl Sulfide	18.8	12.0	7.67	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	18.7	7.80	6.00	2.50	<u> </u>
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	12.1	18.0	3.29	5.00	J
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	1
110-01-0	Tetrahydrothiophene	21.4	18.0	5.94	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The analyte was positively identified below the laboratory method reporting limit;

the associated numerical value is considered estimated.

Verified By:	KRIH	Date:_	orheld
			Page No.:

### RESULTS OF ANALYSIS Page 1 of 1

GeoSyntec Consultants, Inc. **Client:** 

SF-STY1-U-SR Client Sample ID: Ascon LF/SB0202-31H Client Project ID:

CAS Project ID: P2401406 CAS Sample ID: P2401406-002

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Collected: 7/1/04 Time Collected: 09:45

Date Received: 7/1/04 Date Analyzed: 7/1/04

Time Analyzed: 17:30

Volume(s) Analyzed:

 $1.0 \, \text{ml(s)}$ 

D.F.=1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
CAO #	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	24.1	7.00	17.3	5.00	<u> </u>
463-58-1	Carbonyl Sulfide	30.6	12.0	12.5	5.00	ļ
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	24.9	7.80	8.01	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	12.4	18.0	3.37	5.00	J
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	17.8	18.0	4.94	5.00	J
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	<b></b>
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The analyte was positively identified below the laboratory method reporting limit;

the associated numerical value is considered estimated.

Verified By:	KMH	Date:_	<u> जनात्मिक</u>

Page No.:

01406SVG.RD1 - Sample (2)

# RESULTS OF ANALYSIS Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-STY2-U-S

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401406

CAS Sample ID: P2401406-003

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Collected: 7/1/04

Time Collected: 10:13
Date Received: 7/1/04

Date Analyzed: 7/1/04

Time Analyzed: 17:56

Volume(s) Analyzed:

 $1.0 \, \text{ml(s)}$ 

D.F.=1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
CAS	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	296	7.00	212	5.00	
463-58-1	Carbonyl Sulfide	207	12.0	84.4	5.00	_
74-93-1	Methyl Mercaptan	7.85	9.80	3.99	5.00	J
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	1,230	7.80	394	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	_
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	24.3	9.60	6.30	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	_
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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Verified By:	KLALL	Date:	ortholog	

### RESULTS OF ANALYSIS Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-STY1-C1-S

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401406 CAS Sample ID: P2401406-004

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Analyzed: 7/2/04 Time Analyzed: 10:46

Date Collected: 7/1/04

Time Collected: 11:04

Date Received: 7/1/04

Volume(s) Analyzed:

 $1.0 \, ml(s)$ 

D.F.=1.00

	1	Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
CAS #	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	9.92	7.00	7.12	5.00	
463-58-1	Carbonyl Sulfide	35.3	12.0	14.4	5.00	<u> </u>
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	<u> </u>
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	<b></b>
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	<u> </u>
75-15-0	Carbon Disulfide	42.1	7.80	13.5	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	<u> </u>
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	<u> </u>
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	18.3	18.0	4.97	5.00	J
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	27.6	18.0	7.67	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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the associated numerical value is considered estimated.

Verified By:	KriH	Date:_	<u> त्यालील</u>
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Page No :

# RESULTS OF ANALYSIS Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-STY2-C1-S

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401406

CAS Sample ID: P2401406-005

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Tadlar Dog

Date Received: 7/1/04 Date Analyzed: 7/2/04 Time Analyzed: 11:05

Date Collected: 7/1/04

Time Collected: 11:35

Volume(s) Analyzed:

 $1.0 \, \text{ml}(s)$ 

D.F.=1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
CAS#	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	2,280	7.00	1,640	5.00	
463-58-1	Carbonyl Sulfide	1,460	12.0	595	5.00	<b> </b>
74-93-1	Methyl Mercaptan	29.7	9.80	15.1	5.00	<b>_</b>
75-08-1	Ethyl Mercaptan	19.3	13.0	7.58	5.00	<u> </u>
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	<u> </u>
75-15-0	Carbon Disulfide	3,940	7.80	1,270	2.50	<u> </u>
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	<u> </u>
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	<u> </u>
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

			(c
Verified By:	KHH	Date:_	Page No.:

### RESULTS OF ANALYSIS

Page 1 of 1

Client: GeoSyntec Consultants, Inc.

Client Sample ID: Method Blank

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401406 CAS Sample ID: P040701-MB

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Analyst:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/01/04

Time Analyzed: 09:50

Volume(s) Analyzed:

1.0 ml(s)

D.F.=1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
CAS#	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	<u> </u>
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	<u> </u>
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

### RESULTS OF ANALYSIS

Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

Method Blank

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401406

CAS Sample ID: P040702-MB

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/02/04

Time Analyzed: 10:27

Volume(s) Analyzed:

 $1.0 \, \text{ml}(s)$ 

D.F.=1.00

	T	Result	MRL	Result	MRL	Data
C 1 C 4	Compound	, Account				Qualifier
CAS#	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	<b> </b>
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	<u> </u>
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	<b> </b>
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	<u> </u>
75-66 <b>-</b> 1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	1
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	<b></b>
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND_	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND_	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

Verified By:	KHILL	Date:_	07/14/04	ae No

# Columbia Analytical Services, Inc. Sample Acceptance Check Form

			San	aple Acceptance Chec	ek Form				
Client:	GeoSyntec Cons	sultants		_	Work order:	P2401406			<del></del>
Project:	Ascon LF/SB02	02-31H						·	
S	ample(s) receive	d on:	7/1/04	Date opened:	7/1/04		SM		
<i>Vote:</i> This	form is used for <u>all</u> sam	ples recei	ved by CAS. The use of	f this form for custody seals is	strictly meant to indica	te presence/absenc	e and not as a	an indication	on of
ompliance	or nonconformity. The	ermal pres	ervation and pH will on	ly be evaluated either at the rec	quest of the client or as	required by the m	ethod/SOP.	TNT -	TAT / A
							Yes	<u>No</u>	<u>N/A</u>
1	Were custody sea	ıls on ou	tside of cooler/Box	?				X	
	Location of seal	(s)?				Sealing Lid?			X
	Were signature	and date	included?						X
	Were seals intac								X
			tside of sample con	tainer?				X	
	Location of sea		•			Sealing Lid?			$\boxtimes$
	Were signature	· · · -	e included?			_			X
	Were seals intac								X
2			properly marked w	ith client sample ID?			$\boxtimes$		
3			rrive in good condit				X		
4			apers used and fille				X		
5				ee with custody papers?			$\times$		
6			eived adequate for a				$\times$		
7			fied holding times?				$\boxtimes$		
8				ion) of cooler at receipt a	adhered to?				X
o	was proper temp		ooler Temperature		°C				
			Blank Temperature		°C				
0	Is pH (said) pres		•	ing to method/SOP or Cl	ient specified info	mation?		X	
9				d samples are <b>pH</b> (acid) p					$\boxtimes$
				ence of air bubbles?					X
	Describe alient/s	othod/	SOP require that the	e analyst check the samp	le nH and if necess	ary alter it?			X
10	Tubes:		e tubes capped and i		. P. 2	<del></del>			$\times$
10	rubes:		y contain moisture?						$\boxtimes$
1.1	Dadman		e badges properly c						X
11	Badges:			rated and individually ca	nned and intact?				$\boxtimes$
		7 HC G	7				·		
	Lab Sample ID		Required pH	pH (as received, if required)	VOA Headspace (Presence/Absence)		eccipt / Pres Comme		
P24014	27.001				NA NA				
P24014					NA				
P24014					NA				
P24014					NA				
P24014	06-005				NA				
-									
<b> </b>									
Explai	n any discrepancie	s: (inclu	de lab sample ID n	umbers):					

7/1/04 4:48 PM

Analytical Services Inc. An Employee Company Company Company Company (69)

www.caslab.com

# CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

PAGE 6925 Canoga Ave. • Canoga Park, CA 91303 • (818) 587-5550 • 800-695-7222 x02 • FAX (818) 587-5555

QF

P240 1406 CAS Contact

La Long Preservative Key 0. NONE REMARKS/ ALTERNATE DESCRIPTION HCL HNO3 H2SO4 NaOH Zn. Acetate MeOH NaHSO4 INVOICE INFORMATION Other Scosynfer 580252-31# PO# ANALYSIS REQUESTED (Include Method Number and Container Preservative) CHS IV. Data Validation Report with Raw Data II. Results + QC Summaries (LCS, DUP, MS/MSD as required) REPORT REQUIREMENTS III, Results + QC and Calibration Summaries Yes Signatule Agram 1071/L min 1. Results Only POL/MDL/J Date/Tires TURNAROUND REQUIREMENTS RUSH (SURCHARGES APPLY) DUNDO G A 0/1 PLEASE CIRCLE WORK DAYS REQUESTED REPORT DATE 10 C REQUESTED FAX DATE STANDARD PRESERVATIVE CUSTODY SEALS: Y Story NUMBER OF CONTRINERS んない SAMPLING DATE TIME MATRIX Sampler's Med Name CASA 48:0to 5.20 <u>8</u> 2. 5.3 4:43 Project Number SBC202-31H
SBC202-31H
Report CC
LOWNEN Dage FAX\* 74) 969-0820 ٦, = Distribution: White - Refurn to Originator: Yellow - Lab Copy; Pink - Refained by Client monternts 大: LAB ID R/H Date Time 1-07 CONDITION/COOLER TEMP: Project Manager Recorden SPECIAL INSTRUCTIONS/COMMENTS ##: W メンタントーローの Phone #, 4) 969,000 アーセンインシルの 次·8744·01·S 37.5172-C1-3 シャントレーロ・か CLIENT SAMPLE ID というのとのなった Jersyntec Ascon LF 2501.041 SAMPLE RECEIPT: 4B, CA See QAPP Project Name



### LABORATORY REPORT

Client:

GEOSYNTEC CONSULTANTS, INC.

Date of Report:

07/20/04

Address:

2100 Main Street, Suite 150

Date Received:

07/01/04

Huntington Beach, CA 92648

CAS Project No:

P2401412

Contact:

Mr Mike Reardon

Purchase Order:

SB0202-31H

Client Project ID: Ascon LF/SB0202-31H

One (1) 1.0 Liter Canister labeled:

"PNL-F75-1-T"

Six (6) Stainless Steel Summa Canisters labeled:

"SF-BLK"

"SF-STY1-U-T"

"SF-STY2-U-T"

"SF-STY2-U-TR"

"SF-STY1-C1-T"

"SF-STY2-C1-T"

The samples were received at the laboratory under chain of custody on July 1, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

# C1 through C6 Hydrocarbon Analysis

The samples were analyzed per modified EPA Method TO-3 for  $C_1$  through  $>C_6$  hydrocarbons using a gas chromatograph equipped with a flame ionization detector (FID).

Reviewed and Approved:

Air Quality Laboratory

Reviewed and Approved:

1/46-

Michelle Sakamoto
Analytical Chemist

Michelle H. Lakarasto

GC-VOA Team Leader Air Quality Laboratory

Wade Henton

Page 1 of 37



CAS Project No:

2665 Park Center Drive, Suite D

P2401412

# Volatile Organic Compound Analysis

The samples were also analyzed by combined gas chromatography/mass spectrometry (GC/MS) for selected volatile organic compounds and tentatively identified compounds. The analyses were performed according to the methodology outlined in EPA Method TO-15. The analyses were performed by gas chromatography/mass spectrometry, utilizing a direct cryogenic trapping technique. The analytical system used was comprised of a Hewlett Packard Model 5972 GC/MS/DS interfaced to a Tekmar AutoCan Elite whole air inlet system/cryogenic concentrator. A 100% Dimethylpolysiloxane capillary column (RT<sub>x</sub>-1, Restek Corporation, Bellefonte, PA) was used to achieve chromatographic separation.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

### RESULTS OF ANALYSIS

Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

PNL-F75-1-T

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-001

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Wade Henton

Sampling Media:

1.0 Liter Summa Canister

Date Collected: 6/30/04

Date Received: 7/1/04 Date Analyzed: 7/8/04

Volume(s) Analyzed:

1.0 ml

Test Notes:

Pi 1 =

1.2

Pf1 =

10.0

D.F. = 1.55

	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	Quanner
Methane	ND	0.78	
C <sub>2</sub> as Ethane	ND	0.78	
C <sub>3</sub> as Propane	ND	0.78	
C <sub>4</sub> as n-Butane	ND	0.78	
C <sub>5</sub> as n-Pentane	ND	0.78	
C <sub>6</sub> as n-Hexane	ND	0.78	
C <sub>6</sub> + as n-Hexane	ND	1.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

# RESULTS OF ANALYSIS Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

**Client Sample ID:** 

SF-BLK

CAS Project ID: P2401412

Date Collected: 6/28/04

Date Received: 7/1/04

**Client Project ID:** 

Ascon LF/SB0202-31H

CAS Sample ID: P2401412-002

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Wade Henton

Sampling Media:

Summa Canister

Date Analyzed: 7/8/04 Volume(s) Analyzed:

1.0 ml

Test Notes:

Container ID:

SC00391

Pi 1 = 0.6

Pf1 =

3.5

D.F. = 1.19

	Result	MRL	Data
Compound			Qualifier
•	ppmV	ppmV	
Methane	ND	0.59	
C <sub>2</sub> as Ethane	ND	0.59	
C <sub>3</sub> as Propane	ND	0.59	
C <sub>4</sub> as n-Butane	ND	0.59	
C <sub>5</sub> as n-Pentane	ND	0.59	
C <sub>6</sub> as n-Hexane	ND	0.59	
C <sub>6</sub> + as n-Hexane	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### RESULTS OF ANALYSIS Page 1 of 1

GeoSyntec Consultants, Inc. Client:

CAS Project ID: P2401412 SF-STY1-U-T Client Sample ID:

CAS Sample ID: P2401412-003 Ascon LF/SB0202-31H **Client Project ID:** 

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst: Sampling Media: Wade Henton

Summa Canister

Test Notes:

Container ID:

SC00125

Date Collected: 7/1/04 Date Received: 7/1/04

Date Analyzed: 7/8/04

Volume(s) Analyzed:

1.0 ml

Pf 1 =3.5 Pi 1 = 0.2

D.F. = 1.22

	Result	MRL	Data
Compound	ppmV	ppmV	Qualifier
Methane	1.3	0.61	
C <sub>2</sub> as Ethane	ND	0.61	
C <sub>3</sub> as Propane	ND	0.61	
C <sub>4</sub> as n-Butane	ND	0.61	
C <sub>5</sub> as n-Pentane	ND	0.61	
C <sub>6</sub> as n-Hexane	ND	0.61	
C <sub>6</sub> + as n-Hexane	6.2	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: Rt Date: 7116 04

### RESULTS OF ANALYSIS

Page 1 of 1

**Client:** 

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-STY1-U-T

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-003DUP

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Wade Henton

Sampling Media:

Summa Canister

Test Notes:

Container ID:

SC00125

Date Collected: 7/1/04 Date Received: 7/1/04 Date Analyzed: 7/8/04

3.5

Volume(s) Analyzed:

1.0 ml

Pi 1 =

0.2

Pf1 =

D.F. = 1.22

	Result	MRL	Data
Compound	ppmV	ppmV	Qualifier
Methane	1.2	0.61	
C <sub>2</sub> as Ethane	ND	0.61	
C <sub>3</sub> as Propane	ND	0.61	
C <sub>4</sub> as n-Butane	ND	0.61	
C <sub>5</sub> as n-Pentane	ND	0.61	
C <sub>6</sub> as n-Hexane	ND	0.61	
C <sub>6</sub> + as n-Hexane	6.8	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### **RESULTS OF ANALYSIS**

Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

**Client Sample ID:** 

SF-STY2-U-T

**Client Project ID:** 

Ascon LF/SB0202-31H

CAS Project ID: P2401412

Date Collected: 7/1/04

3.5

CAS Sample ID: P2401412-004

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Wade Henton

Sampling Media:

Summa Canister

Test Notes:

Container ID:

SC00473

Date Received: 7/1/04 Date Analyzed: 7/8/04

Volume(s) Analyzed:

1.0 ml

Pi 1 =

0.3

Pf1 =

D.F. = 1.21

	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	Quantitei
Methane	1.0	0.61	
C <sub>2</sub> as Ethane	ND	0.61	_
C <sub>3</sub> as Propane	ND	0.61	
C <sub>4</sub> as n-Butane	ND	0.61	
C <sub>5</sub> as n-Pentane	ND	0.61	
C <sub>6</sub> as n-Hexane	ND	0.61	
C <sub>6</sub> + as n-Hexane	20	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### RESULTS OF ANALYSIS

Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

**Client Sample ID:** 

SF-STY2-U-TR

**Client Project ID:** 

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-005

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Wade Henton

Sampling Media:

Summa Canister

Test Notes:

Container ID:

SC00433

Date Collected: 7/1/04 Date Received: 7/1/04 Date Analyzed: 7/8/04

Volume(s) Analyzed:

3.5

1.0 ml

Pi 1 =

0.2

Pf 1 =

D.F. = 1.22

	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	Quumino.
Methane	1.1	0.61	
C <sub>2</sub> as Ethane	ND	0.61	
C <sub>3</sub> as Propane	ND	0.61	
C <sub>4</sub> as n-Butane	ND	0.61	
C <sub>5</sub> as n-Pentane	ND	0.61	
C <sub>6</sub> as n-Hexane	ND	0.61	
C <sub>6</sub> + as n-Hexane	20	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Date: 7116104 Verified By: RU

### **RESULTS OF ANALYSIS**

Page 1 of 1

**Client:** 

GeoSyntec Consultants, Inc.

**Client Sample ID:** 

SF-STY1-C1-T

**Client Project ID:** 

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-006

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Wade Henton

Sampling Media:

Summa Canister

Test Notes:

Container ID:

SC00022

Date Collected: 7/1/04 Date Received: 7/1/04 Date Analyzed: 7/8/04

3.5

Volume(s) Analyzed:

1.0 ml

Pi 1 =

0.1

Pf1 =

D.F. = 1.23

	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	Quantitei
Methane	0.91	0.61	
C <sub>2</sub> as Ethane	ND	0.61	
C <sub>3</sub> as Propane	ND	0.61	
C <sub>4</sub> as n-Butane	ND	0.61	
C <sub>5</sub> as n-Pentane	ND	0.61	
C <sub>6</sub> as n-Hexane	ND	0.61	
C <sub>6</sub> + as n-Hexane	14	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### RESULTS OF ANALYSIS

Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

**Client Sample ID:** 

SF-STY2-C1-T

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401412

Date Collected: 7/1/04

Date Received: 7/1/04

CAS Sample ID: P2401412-007

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Wade Henton

Sampling Media:

Summa Canister

Date Analyzed: 7/8/04 Volume(s) Analyzed:

3.5

1.0 ml

Test Notes:

Container ID:

SC00575

0.0 Pi 1 =

Pf 1 =

D.F. = 1.24

	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	Quanner
Methane	ND	0.62	
C <sub>2</sub> as Ethane	ND	0.62	
C <sub>3</sub> as Propane	ND	0.62	
C <sub>4</sub> as n-Butane	ND	0.62	
C <sub>5</sub> as n-Pentane	ND	0.62	
C <sub>6</sub> as n-Hexane	ND	0.62	
C <sub>6</sub> + as n-Hexane	5.1	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### **RESULTS OF ANALYSIS** Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

**Client Sample ID:** 

Method Blank

**Client Project ID:** 

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P040708-MB

Test Code:

Modified EPA TO-3

Instrument ID: Analyst:

HP5890II/GC8/FID

Wade Henton

Sampling Media:

Summa Canister

Date Collected: NA Date Received: NA

Date Analyzed: 7/08/04

Volume(s) Analyzed:

1.0 ml

Test Notes:

D.F. = 1.00

	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	Quannier
Methane	ND	0.50	
C <sub>2</sub> as Ethane	ND	0.50	
C <sub>3</sub> as Propane	ND	0.50	
C <sub>4</sub> as n-Butane	ND	0.50	
C <sub>5</sub> as n-Pentane	ND	0.50	
C <sub>6</sub> as n-Hexane	ND	0.50	
C <sub>4</sub> + as n-Hexane	ND	1.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### **RESULTS OF ANALYSIS** Page 1 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: PNL-F75-1-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P2401412-001

Date Collected: 6/30/04

Date Received: 7/1/04

Date(s) Analyzed: 7/8/04

Volume(s) Analyzed:

0.40 Liter(s)

Test Code:

Modified EPA TO-15 Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Instrument ID:

Michelle Sakamoto

Analyst:

Sampling Media:

1.0 Liter Summa Canister

Test Notes:

Container ID:

ISC00012

Pf 1 = 10.0Pi 1 = 1.2

D.F. = 1.55

CAS#	Compound	Result μg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	1.9	ND	0.94	
75-01-4	Vinyl Chloride	ND	1.9	ND	0.76	
106-99-0	1,3-Butadiene	ND	1.9	ND	0.88	
74-83-9	Bromomethane	ND	1.9	ND	0.50	
75-00-3	Chloroethane	ND	1.9	ND	0.73	
67-64-1	Acetone	ND	19	ND	8.2	
75-69-4	Trichlorofluoromethane	ND	1.9	ND	0.34	
107-13-1	Acrylonitrile	ND	1.9	ND	0.89	<u> </u>
75-35-4	1,1-Dichloroethene	ND	1.9	ND	0.49	
75-09-2	Methylene chloride	ND	1.9	ND	0.56	
76-13-1	Trichlorotrifluoroethane	ND	1.9	ND	0.25	
75-15-0	Carbon Disulfide	ND	1.9	ND	0.62	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	ND	0.49	<b></b>
75-34-3	1,1-Dichloroethane	ND	1.9	ND	0.48	<b> </b>
1634-04-4	Methyl tert-Butyl Ether	ND	1.9	ND	0.54	
108-05-4	Vinyl Acetate	ND	3.9	ND	1.1	<u> </u>
78-93-3	2-Butanone (MEK)	ND	1.9	ND	0.66	<u> </u>
156-59-2	cis-1,2-Dichloroethene	ND	1.9	ND	0.49	<u> </u>
67-66-3	Chloroform	ND	1.9	ND	0.40	<u> </u>
107-06-2	1,2-Dichloroethane	ND	1.9	ND	0.48	<u> </u>
71-55-6	1,1,1-Trichloroethane	ND	1.9	ND	0.36	<u> </u>
71-43-2	Benzene	ND	1.9	ND	0.61	
56-23-5	Carbon Tetrachloride	ND	1.9	ND	0.31	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RO Date: 71604

Page No.:

### **RESULTS OF ANALYSIS**

Page 2 of 3

**Client:** 

GeoSyntec Consultants, Inc.

Client Sample ID: PNL-F75-1-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P2401412-001

Test Code:

Modified EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Michelle Sakamoto

Sampling Media:

1.0 Liter Summa Canister

Test Notes:

Container ID:

ISC00012

Date Collected: 6/30/04

Date Received: 7/1/04

Date(s) Analyzed: 7/8/04 Volume(s) Analyzed:

0.40 Liter(s)

Pf 1 = 10.0Pi 1 = 1.2

D.F. = 1.55

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	1.9	ND	0.42	
75-27-4	Bromodichloromethane	ND	1.9	ND	0.29	
79-01-6	Trichloroethene	ND	1.9	ND	0.36	
10061-01-5	cis-1,3-Dichloropropene	ND	1.9	ND	0.43	
108-10-1	4-Methyl-2-pentanone	ND	1.9	ND	0.47	
10061-02-6	trans-1,3-Dichloropropene	ND	1.9	ND	0.43	<u> </u>
79-00-5	1,1,2-Trichloroethane	ND	1.9	ND	0.36	
108-88-3	Toluene	ND	1.9	ND	0.51	<u> </u>
591-78-6	2-Hexanone	ND	1.9	ND	0.47	
124-48-1	Dibromochloromethane	ND	1.9	ND	0.23	
106-93-4	1,2-Dibromoethane	ND	1.9	ND	0.25	
127-18-4	Tetrachloroethene	ND	1.9	ND	0.29	
108-90-7	Chlorobenzene	ND	1.9	ND	0.42	
100-41-4	Ethylbenzene	ND	1.9	ND	0.45	
136777-61-2	m,p-Xylenes	ND	3.9	ND	0.89	
75-25-2	Bromoform	ND	1.9	ND	0.19	
100-42-5	Styrene	ND	1.9	ND	0.46	
95-47-6	o-Xylene	ND	1.9	ND	0.45	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.9	ND	0.28	
541-73-1	1,3-Dichlorobenzene	ND	1.9	ND	0.32	
106-46-7	1,4-Dichlorobenzene	ND	1.9	ND	0.32	
95-50-1	1,2-Dichlorobenzene	ND	1.9	ND	0.32	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RU Date: 11604

# RESULTS OF ANALYSIS Page 3 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

PNL-F75-1-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-001

### **Tentatively Identified Compounds**

Test Code:

Modified EPA TO-15

Date Collected: 6/30/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/1/04

Analyst:

Michelle Sakamoto

1.0 Liter Summa Canister

Date Analyzed: 7/8/04 Volume(s) Analyzed: 0.4

0.40 Liter(s)

Sampling Media: Test Notes:

Container ID:

ISC00012

Pi 1 = 1.2

Pf 1 = 10.0

D.F. = 1.55

GC / MS	Compound Identification	Concentration	Data
Ret. Time		μg/m³	Qualifier
	No Compounds Detected		

### RESULTS OF ANALYSIS Page 1 of 3

GeoSyntec Consultants, Inc. Client:

CAS Project ID: P2401412 Client Sample ID: SF-BLK CAS Sample ID: P2401412-002 Client Project ID: Ascon LF/SB0202-31H

Date Collected: 6/28/04 EPA TO-15 Test Code: Date Received: 7/1/04 Tekmar AUTOCAN/HP5972/HP5890 II+/MS2 Instrument ID:

Date(s) Analyzed: 7/8/04 Michelle Sakamoto Analyst:

1.00 Liter(s) Volume(s) Analyzed: Summa Canister Sampling Media:

Test Notes:

SC00391 Container ID:

Pf 1 = 3.5Pi 1 = 0.6

D.F. = 1.19

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.60	ND	0.29	
75-01-4	Vinyl Chloride	ND	0.60	ND_	0.23	
106-99-0	1,3-Butadiene	ND	0.60	ND	0.27	
74-83-9	Bromomethane	ND	0.60	ND	0.15	
75-00-3	Chloroethane	ND	0.60	ND	0.23	
67-64-1	Acetone	ND	6.0	ND	2.5	
75-69-4	Trichlorofluoromethane	ND	0.60	ND	0.11	ļ
107-13-1	Acrylonitrile	ND	0.60	ND	0.27	
75-35-4	1,1-Dichloroethene	ND	0.60	ND	0.15	<u> </u>
75-09-2	Methylene chloride	ND	0.60	ND	0.17	<b></b>
76-13-1	Trichlorotrifluoroethane	ND	0.60	ND	0.08	
75-15-0	Carbon Disulfide	ND	0.60	ND	0.19	<u> </u>
156-60-5	trans-1,2-Dichloroethene	ND	0.60	ND	0.15	<u> </u>
75-34-3	1,1-Dichloroethane	ND	0.60	ND	0.15	
1634-04-4	Methyl tert-Butyl Ether	ND	0.60	ND	0.17	
108-05-4	Vinyl Acetate	ND	1.2	ND	0.34	<b></b>
78-93-3	2-Butanone (MEK)	ND	0.60	ND	0.20	<b> </b>
156-59-2	cis-1,2-Dichloroethene	ND	0.60	ND	0.15	<u> </u>
67-66-3	Chloroform	ND	0.60	ND	0.12	<b></b>
107-06-2	1,2-Dichloroethane	ND	0.60	ND	0.15	<b> </b>
71-55-6	1,1,1-Trichloroethane	ND	0.60	ND	0.11	<b></b>
71-43-2	Benzene	ND	0.60	ND	0.19	<u> </u>
56-23-5	Carbon Tetrachloride	ND	0.60	ND	0.09	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: Rc Date: 116104

### **RESULTS OF ANALYSIS**

Page 2 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-BLK

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-002

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Michelle Sakamoto

Sampling Media:

Summa Canister

Test Notes:

Container ID:

SC00391

Date Collected: 6/28/04

Date Received: 7/1/04

Date(s) Analyzed: 7/8/04

Volume(s) Analyzed:

1.00 Liter(s)

0.6 Pi 1 =

Pf 1 = 3.5

D.F. = 1.19

CAS#	Compound	Result μg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.60	ND	0.13	
75-27-4	Bromodichloromethane	ND	0.60	ND	0.09	
79-01-6	Trichloroethene	ND	0.60	ND	0.11	
10061-01-5	cis-1,3-Dichloropropene	ND	0.60	ND	0.13	
108-10-1	4-Methyl-2-pentanone	ND	0.60	ND	0.15	
10061-02-6	trans-1,3-Dichloropropene	ND	0.60	ND	0.13	
79-00-5	1,1,2-Trichloroethane	ND	0.60	ND	0.11	
108-88-3	Toluene	ND	0.60	ND	0.16	
591-78-6	2-Hexanone	ND	0.60	ND	0.15	
124-48-1	Dibromochloromethane	ND	0.60	ND .	0.07	
106-93-4	1,2-Dibromoethane	ND	0.60	ND	0.08	ļ
127-18-4	Tetrachloroethene	ND	0.60	ND	0.09	ļ
108-90-7	Chlorobenzene	ND	0.60	ND	0.13	
100-41-4	Ethylbenzene	ND	0.60	ND	0.14	
136777-61-2	m,p-Xylenes	ND	1.2	ND	0.27	ļ
75-25-2	Bromoform	ND	0.60	ND	0.058	<b> </b>
100-42-5	Styrene	ND	0.60	ND	0.14	<u> </u>
95-47-6	o-Xylene	ND	0.60	ND	0.14	<b></b>
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.60	ND	0.09	<b> </b>
541-73-1	1,3-Dichlorobenzene	ND	0.60	ND	0.10	<b></b>
106-46-7	1,4-Dichlorobenzene	ND	0.60	ND	0.10	<b> </b>
95-50-1	1,2-Dichlorobenzene	ND	0.60	ND	0.10	<u></u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: C Date: 7116 04

### RESULTS OF ANALYSIS Page 3 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-BLK

Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-002

# **Tentatively Identified Compounds**

Test Code:

**EPA TO-15** 

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Collected: 6/28/04 Date Received: 7/1/04

Instrument ID:

Michelle Sakamoto

Date Analyzed: 7/8/04

Analyst: Sampling Media:

Summa Canister

Volume(s) Analyzed:

1.00 Liter(s)

Test Notes:

Container ID:

SC00391

Pi 1 =0.6 Pf 1 = 3.5

D.F. = 1.19

GC / MS	Compound Identification	Concentration	Data
Ret. Time		μg/m³	Qualifier
	No Compounds Detected		

### RESULTS OF ANALYSIS

Page 1 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY1-U-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-003

Test Code:

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Michelle Sakamoto Summa Canister

Test Notes:

Container ID:

Sampling Media:

SC00125

EPA TO-15

Date Collected: 7/1/04 Date Received: 7/1/04

Date(s) Analyzed: 7/7 - 7/8/04 Volume(s) Analyzed:

0.060 Liter(s)

0.020 Liter(s)

Pi 1 =

0.2

Pf 1 = 3.5

D.F. = 1.22

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	10	ND	4.9	
75-01-4	Vinyl Chloride	ND	10	ND	4.0	
106-99-0	1,3-Butadiene	ND	10	ND	4.6	
74-83-9	Bromomethane	ND	10	ND	2.6	
75-00-3	Chloroethane	ND	10	ND	3.9	
67-64-1	Acetone	ND	100	ND	43	<u> </u>
75-69-4	Trichlorofluoromethane	ND	10	ND	1.8	<u> </u>
107-13-1	Acrylonitrile	ND	10	ND	4.7	ļ
75-35-4	1,1-Dichloroethene	ND	10	ND	2.6	
75-09-2	Methylene chloride	ND	10	ND	2.9	<u> </u>
76-13-1	Trichlorotrifluoroethane	ND	10	ND	1.3	
75-15-0	Carbon Disulfide	ND	10	ND	3.3	<b></b>
156-60-5	trans-1,2-Dichloroethene	ND	10	ND	2.6	<u> </u>
75-34-3	1,1-Dichloroethane	ND	10	ND	2.5	
1634-04-4	Methyl tert-Butyl Ether	ND	10	ND	2.8	
108-05-4	Vinyl Acetate	ND	20	ND	5.8	
78-93-3	2-Butanone (MEK)	ND	10	ND	3.4	
156-59-2	cis-1,2-Dichloroethene	ND	10	ND	2.6	
67-66-3	Chloroform	ND	10	ND	2.1	
107-06-2	1,2-Dichloroethane	ND	10	ND	2.5	
71-55-6	1,1,1-Trichloroethane	ND	10	ND	1.9	
71-33-0	Benzene	1,200	10	380	3.2	
56-23-5	Carbon Tetrachloride	ND	10	ND	1.6	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: Q. Date: 7116104

### **RESULTS OF ANALYSIS**

Page 2 of 3

GeoSyntec Consultants, Inc. **Client:** 

CAS Project ID: P2401412 Client Sample ID: SF-STY1-U-T CAS Sample ID: P2401412-003 Client Project ID: Ascon LF/SB0202-31H

EPA TO-15 Test Code:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2 Instrument ID:

Michelle Sakamoto Analyst:

Summa Canister Sampling Media:

Test Notes:

SC00125 Container ID:

Date Collected: 7/1/04

Date Received: 7/1/04 Date(s) Analyzed: 7/7 - 7/8/04

0.060 Liter(s) Volume(s) Analyzed:

0.020 Liter(s)

Pf 1 = 3.50.2 Pi 1 =

D.F. = 1.22

CAS#	Compound	Result μg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND ND	10	ND	2.2	
	Bromodichloromethane	ND	10	ND	1.5	
75-27-4 79-01-6	Trichloroethene	ND	10	ND	1.9	
	cis-1,3-Dichloropropene	ND	10	ND	2.2	
10061-01-5	4-Methyl-2-pentanone	ND	10	ND	2.5	
108-10-1	trans-1,3-Dichloropropene	ND	10	ND	2.2	
10061-02-6	1,1,2-Trichloroethane	ND	10	ND	1.9	
79-00-5	Toluene	580	10	150	2.7	
108-88-3	2-Hexanone	ND	10	ND	2.5	
591-78-6	Dibromochloromethane	ND	10	ND	1.2	
124-48-1	1,2-Dibromoethane	ND	10	ND	1.3	
106-93-4	Tetrachloroethene	ND	10	ND	1.5	
127-18-4	<u>,</u>	ND	10	ND	2.2	
108-90-7	Chlorobenzene	5,200	10	1,200	2.3	
100-41-4	Ethylbenzene	ND	20	ND	4.7	
136777-61-2	m,p-Xylenes	ND	10	ND	0.98	
75-25-2	Bromoform	89	10	21	2.4	
100-42-5	Styrene	11	10	2.6	2.3	
95-47-6	o-Xylene	ND	10	ND	1.5	
79-34-5	1,1,2,2-Tetrachloroethane	ND	10	ND	1.7	
541-73-1	1,3-Dichlorobenzene	ND ND	10	ND	1.7	
106-46-7	1,4-Dichlorobenzene 1,2-Dichlorobenzene	ND	10	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### **RESULTS OF ANALYSIS** Page 3 of 3

GeoSyntec Consultants, Inc. Client:

CAS Project ID: P2401412 SF-STY1-U-T **Client Sample ID:** CAS Sample ID: P2401412-003 Ascon LF/SB0202-31H Client Project ID:

# **Tentatively Identified Compounds**

Date Collected: 7/1/04 Test Code: EPA TO-15 Date Received: 7/1/04 Tekmar AUTOCAN/HP5972/HP5890 II+/MS2 Instrument ID:

Date Analyzed: 7/8/04 Michelle Sakamoto Analyst:

0.060 Liter(s) Volume(s) Analyzed: Summa Canister Sampling Media: Т Test Notes:

0.020 Liter(s)

Container ID: SC00125

Pf 1 = 3.5Pi 1 =0.2

D.F. = 1.22

GC / MS Ret. Time	Compound Identification	Concentration μg/m³	Data Qualifier
23.10	Cumene	900	
23.95	Propylbenzene	200	
24.58	alpha-Methylstyrene	2,000	
25.40	C <sub>10</sub> H <sub>14</sub> Aromatic Compound	1,000	
25.62	C <sub>2</sub> H <sub>10</sub> Compound	3,000	
26.13	Diethylbenzene Isomer	2,000	
26.27	Diethylbenzene Isomer	1,000	
26.41	Diethylbenzene Isomer	400	
27.31	C <sub>10</sub> H <sub>12</sub> Compound	900	
28.57	Naphthalene	1,000	
28.65	Benzothiophene Isomer	600	
31.03	Diphenyl	2,000	
31.64	Diphenylmethane	500	
32.41	Methyldiphenyl Isomer + C <sub>14</sub> H <sub>14</sub> Compound	200	
32.91	Stilbene Isomer + Dibenzyl	300	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: Rr Date: 7116104

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### RESULTS OF ANALYSIS Page 1 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-STY2-U-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P2401412-004

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Michelle Sakamoto Summa Canister

Sampling Media:

Test Notes: Container ID:

Date Collected: 7/1/04 Date Received: 7/1/04

Date(s) Analyzed: 7/7 - 7/8/04

Volume(s) Analyzed:

0.050 Liter(s)

0.0050 Liter(s)

SC00473

Pi 1 =

0.3

Pf 1 = 3.5

D.F. = 1.21

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	12	ND	5.9	
75-01-4	Vinyl Chloride	ND	12	ND	4.7	
106-99-0	1,3-Butadiene	ND	12	ND	5.5	
74-83-9	Bromomethane	ND	12	ND	3.1	
75-00-3	Chloroethane	ND	12	ND	4.6	
67-64-1	Acetone	ND	120	ND	51	
75-69-4	Trichlorofluoromethane	ND	12	ND	2.2	
107-13-1	Acrylonitrile	ND	12	ND	5.6	<b> </b>
75-35-4	1,1-Dichloroethene	ND	12	ND	3.1	<b> </b>
75-09-2	Methylene chloride	ND	12	ND	3.5	<b></b>
76-13-1	Trichlorotrifluoroethane	ND	12	ND	1.6	ļ
75-15-0	Carbon Disulfide	920	12	300	3.9	ļ
156-60-5	trans-1,2-Dichloroethene	ND	12	ND	3.1	<b> </b>
75-34-3	1,1-Dichloroethane	ND	12	ND	3.0	
1634-04-4	Methyl tert-Butyl Ether	ND	12	ND	3.4	ļ
108-05-4	Vinyl Acetate	ND	24	ND	6.9	
78-93-3	2-Butanone (MEK)	33	12	11	4.1	<b></b>
156-59-2	cis-1,2-Dichloroethene	ND	12	ND	3.1	<u> </u>
67-66-3	Chloroform	ND	12	ND	2.5	
107-06-2	1,2-Dichloroethane	ND	12	ND	3.0	_
71-55-6	1,1,1-Trichloroethane	ND	12	ND	2.2	<u> </u>
71-43-2	Benzene	ND	12	ND	3.8	<u> </u>
56-23-5	Carbon Tetrachloride	ND	12	ND	1.9	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7114104

#### **RESULTS OF ANALYSIS**

Page 2 of 3

**Client:** 

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY2-U-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P2401412-004

Date Collected: 7/1/04

Date Received: 7/1/04

Date(s) Analyzed: 7/7 - 7/8/04

Test Code:

EPA TO-15

Instrument ID:

Analyst:

Sampling Media: Test Notes:

Container ID:

SC00473

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Michelle Sakamoto

Summa Canister

Pi 1 =

0.3

Volume(s) Analyzed:

Pf 1 = 3.5

0.050 Liter(s)

0.0050 Liter(s)

D.F. = 1.21

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	12	ND	2.6	
75-27-4	Bromodichloromethane	ND	12	ND	1.8	
79-01-6	Trichloroethene	ND	12	ND	2.3	
10061-01-5	cis-1,3-Dichloropropene	ND	12	ND	2.7	
108-10-1	4-Methyl-2-pentanone	ND	12	ND	3.0	
10061-02-6	trans-1,3-Dichloropropene	ND	12	ND	2.7	
79-00-5	1,1,2-Trichloroethane	ND	12	ND	2.2	
108-88-3	Toluene	30	12	8.0	3.2	
591-78-6	2-Hexanone	ND	12	ND	3.0	
124-48-1	Dibromochloromethane	ND	12	ND	1.4	
106-93-4	1,2-Dibromoethane	ND	12	ND	1.6	
127-18-4	Tetrachloroethene	ND	12	ND	1.8	ļ
108-90-7	Chlorobenzene	ND	12	ND	2.6	
100-41-4	Ethylbenzene	290	12	67	2.8	
136777-61-2	m,p-Xylenes	48	24	11	5.6	
75-25-2	Bromoform	ND	12	ND	1.2	
100-42-5	Styrene	12,000	12	2,800	2.8	
95-47-6	o-Xylene	32	12	7.3	2.8	ļ
79-34-5	1,1,2,2-Tetrachloroethane	ND	12	ND	1.8	<u> </u>
541-73-1	1,3-Dichlorobenzene	ND	12	ND	2.0	<u> </u>
106-46-7	1,4-Dichlorobenzene	ND	12	ND	2.0	<u> </u>
95-50-1	1,2-Dichlorobenzene	ND	12	ND_	2.0	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: Kr Date: 7116104

### RESULTS OF ANALYSIS Page 3 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY2-U-T Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P2401412-004

**Tentatively Identified Compounds** 

Test Code:

EPA TO-15

Date Collected: 7/1/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/1/04

Analyst:

Michelle Sakamoto

Date Analyzed: 7/8/04

Sampling Media:

Summa Canister

0.050 Liter(s) Volume(s) Analyzed:

T

0.0050 Liter(s)

Test Notes: Container ID:

SC00473

0.3 Pi 1 =

Pf 1 = 3.5

D.F. = 1.21

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
23.71	Benzaldehyde	3,000	
24.59	alpha-Methylstyrene	5,000	
25.40	C <sub>10</sub> H <sub>14</sub> Aromatic Compound	3,000	
25.62	C <sub>9</sub> H <sub>10</sub> Compound	4,000	
26.14	Diethylbenzene Isomer	2,000	
26.21	Acetophenone	5,000	
26.27	Diethylbenzene Isomer	2,000	
27.31	C <sub>10</sub> H <sub>12</sub> Compound	2,000	
28.57	Naphthalene	3,000	
28.66	Triethylbenzene Isomer	1,000	
28.85	Triethylbenzene Isomer	1,000	
29.14	Triethylbenzene Isomer	900	
30.06	Methylnaphthalene Isomer	900	
31.04	Diphenyl	5,000	
31.64	Diphenylmethane	2,000	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RG Date: 71604

#### **RESULTS OF ANALYSIS** Page 1 of 3

GeoSyntec Consultants, Inc. Client:

CAS Project ID: P2401412 Client Sample ID: SF-STY2-U-TR CAS Sample ID: P2401412-005 Client Project ID: Ascon LF/SB0202-31H

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Michelle Sakamoto

Sampling Media: Test Notes:

Container ID:

Summa Canister

SC00433

Date Collected: 7/1/04 Date Received: 7/1/04

Date(s) Analyzed: 7/7 - 7/8/04

Volume(s) Analyzed:

0.050 Liter(s)

0.0050 Liter(s)

Pi 1 =

0.2

Pf 1 = 3.5

D.F. = 1.22

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	12	ND	5.9	ļ
75-01-4	Vinyl Chloride	ND	12	ND	4.8	
106-99-0	1,3-Butadiene	ND	12	ND	5.5	<u> </u>
74-83-9	Bromomethane	ND	. 12	ND	3.1	
75-00-3	Chloroethane	ND	12	ND	4.6	<u> </u>
67-64-1	Acetone	ND	120	ND	51	
75-69-4	Trichlorofluoromethane	ND	12	ND	2.2	<u> </u>
107-13-1	Acrylonitrile	ND	12	ND	5.6	ļ
75-35-4	1,1-Dichloroethene	ND	12	ND	3.1	<b></b>
75-09-2	Methylene chloride	ND	12	ND	3.5	<u> </u>
76-13-1	Trichlorotrifluoroethane	ND	12	ND	1.6	
75-15-0	Carbon Disulfide	730	12	240	3.9	
156-60-5	trans-1,2-Dichloroethene	ND	12	ND	3.1	<u> </u>
75-34-3	1,1-Dichloroethane	ND	12	ND	3.0	
1634-04-4	Methyl tert-Butyl Ether	ND	12	ND	3.4	<u> </u>
108-05-4	Vinyl Acetate	ND	24	ND	6.9	ļ
78-93-3	2-Butanone (MEK)	26	12	8.8	4.1	
156-59-2	cis-1,2-Dichloroethene	ND	12	ND_	3.1	
67-66-3	Chloroform	ND	12	ND	2.5	
107-06-2	1,2-Dichloroethane	ND	12	ND	3.0	
71-55-6	1,1,1-Trichloroethane	ND	12	ND	2.2	
71-43-2	Benzene	ND	12	ND	3.8	
56-23-5	Carbon Tetrachloride	ND	12	ND	1.9	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: The OH

#### **RESULTS OF ANALYSIS**

Page 2 of 3

**Client:** 

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY2-U-TR

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-005

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Michelle Sakamoto

Sampling Media: Test Notes:

Summa Canister

Date Collected: 7/1/04 Date Received: 7/1/04

Date(s) Analyzed: 7/7 - 7/8/04

Volume(s) Analyzed:

0.050 Liter(s)

0.0050 Liter(s)

Container ID:

SC00433

Pi 1 =

0.2

Pf 1 = 3.5

D.F. = 1.22

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	12	ND	2.6	
75-27-4	Bromodichloromethane	ND_	12	ND	1.8	
79-01-6	Trichloroethene	ND	12	ND	2.3	<b> </b>
10061-01-5	cis-1,3-Dichloropropene	ND	12	ND	2.7	<u> </u>
108-10-1	4-Methyl-2-pentanone	ND	12	ND	3.0	<u> </u>
10061-02-6	trans-1,3-Dichloropropene	ND	12	ND	2.7	<u> </u>
79-00-5	1,1,2-Trichloroethane	ND	12	ND	2.2	<b></b>
108-88-3	Toluene	24	12	6.3	3.2	
591-78-6	2-Hexanone	ND	12	ND	3.0	
124-48-1	Dibromochloromethane	ND	12	ND	1.4	<u> </u>
106-93-4	1,2-Dibromoethane	ND	12	ND	1.6	_
127-18-4	Tetrachloroethene	ND	12	ND	1.8	
108-90-7	Chlorobenzene	ND	12	ND	2.7	<u> </u>
100-41-4	Ethylbenzene	230	12	54	2.8	<b>_</b>
136777-61-2	m,p-Xylenes	39	24	8.9	5.6	<b></b>
75-25-2	Bromoform	ND	12	ND	1.2	
100-42-5	Styrene	9,400	12	2,200	2.9	<u> </u>
95-47-6	o-Xylene	26	12	5.9	2.8	
79-34-5	1,1,2,2-Tetrachloroethane	ND	12	ND	1.8	
541-73-1	1,3-Dichlorobenzene	ND	12	ND	2.0	
106-46-7	1,4-Dichlorobenzene	ND	12	ND	2.0	
95-50-1	1,2-Dichlorobenzene	ND	12	ND	2.0	_l

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RU Date: 7/16/04

#### RESULTS OF ANALYSIS Page 3 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY2-U-TR Client Project ID:

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-005

### **Tentatively Identified Compounds**

Test Code:

EPA TO-15

Date Collected: 7/1/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/1/04

Analyst:

Michelle Sakamoto

Date Analyzed: 7/8/04

Sampling Media:

Summa Canister

Volume(s) Analyzed: 0.050 Liter(s)

0.0050 Liter(s)

Test Notes: Container ID: T

SC00433

0.2 Pi 1 =

Pf 1 = 3.5

D.F. = 1.22

GC / MS Ret. Time	Compound Identification	Concentration μg/m³	Data Qualifier
23.71	Benzaldehyde	3,000	
24.59	alpha-Methylstyrene	5,000	
25.40	C <sub>10</sub> H <sub>14</sub> Aromatic Compound	3,000	
25.62	C₀H₁₀ Compound	4,000	
26.15	Diethylbenzene Isomer	2,000	
26.22	Acetophenone	5,000	
26.27	Diethylbenzene Isomer	2,000	
27.31	C <sub>10</sub> H <sub>12</sub> Compound	1,000	
28.58	Naphthalene	3,000	
28.66	Triethylbenzene Isomer	1,000	
28.85	Triethylbenzene Isomer	1,000	
30.07	Methylnaphthalene Isomer	1,000	
31.05	Diphenyl	6,000	
31.64	Diphenylmethane	2,000	
32.40	Methyldiphenyl Isomer + C <sub>14</sub> H <sub>14</sub> Compound	1,000	

T = Analyte is a tentatively identified compound, result is estimated.

### RESULTS OF ANALYSIS Page 1 of 3

GeoSyntec Consultants, Inc. Client:

SF-STY1-C1-T Client Sample ID:

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P2401412-006

Test Code:

EPA TO-15

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Instrument ID: Analyst:

Container ID:

Michelle Sakamoto

Sampling Media: Test Notes:

Summa Canister

SC00022

Date Collected: 7/1/04

Date Received: 7/1/04 Date(s) Analyzed: 7/8/04

Volume(s) Analyzed:

0.10 Liter(s)

0.010 Liter(s)

Pi 1 =

Pf 1 = 3.50.1

D.F. = 1.23

CAS#	Compound	Result μg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	6.2	ND	3.0	
75-01-4	Vinyl Chloride	ND	6.2	ND	2.4	
106-99-0	1,3-Butadiene	ND	6.2	ND	2.8	
74-83-9	Bromomethane	ND	6.2	ND	1.6	ļ
75-00-3	Chloroethane	ND	6.2	ND	2.3	<u> </u>
67-64-1	Acetone	300	62	130	26	
75-69-4	Trichlorofluoromethane	ND	6.2	ND_	1.1	
107-13-1	Acrylonitrile	ND	6.2	ND	2.8	<u> </u>
75-35-4	1,1-Dichloroethene	ND	6.2	ND	1.6	ļ
75-09-2	Methylene chloride	ND	6.2	ND	1.8	ļ
76-13-1	Trichlorotrifluoroethane	ND	6.2	ND	0.80	
75-15-0	Carbon Disulfide	11	6.2	3.6	2.0	
156-60-5	trans-1,2-Dichloroethene	ND	6.2	ND	1.6	<u> </u>
75-34-3	1,1-Dichloroethane	ND	6.2	ND	1.5	<b>.</b>
1634-04-4	Methyl tert-Butyl Ether	ND	6.2	ND	1.7	<b>_</b>
108-05-4	Vinyl Acetate	ND	12	ND	3.5	<u> </u>
78-93-3	2-Butanone (MEK)	14	6.2	4.9	2.1	<u> </u>
156-59-2	cis-1,2-Dichloroethene	ND	6.2	ND	1.6	<u> </u>
67-66-3	Chloroform	ND	6.2	ND	1.3	
107-06-2	1,2-Dichloroethane	ND	6.2	ND	1.5	
71-55-6	1,1,1-Trichloroethane	ND	6.2	ND	1.1	
71-43-2	Benzene	2,000	6.2	620	1.9	<u> </u>
56-23-5	Carbon Tetrachloride	ND	6.2	ND	0.98	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 116104

#### **RESULTS OF ANALYSIS** Page 2 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY1-C1-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-006

Test Code:

EPA TO-15

Date Collected: 7/1/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/1/04 Date(s) Analyzed: 7/8/04

Analyst:

Michelle Sakamoto

0.10 Liter(s)

Sampling Media: Test Notes:

Summa Canister

Volume(s) Analyzed:

0.010 Liter(s)

Container ID:

SC00022

Pi 1 =

0.1

Pf1 = 3.5

D.F. = 1.23

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	6.2	ND	1.3	
75-27-4	Bromodichloromethane	ND	6.2	ND	0.92	
79-01-6	Trichloroethene	ND	6.2	ND	1.1	ļ
10061-01-5	cis-1,3-Dichloropropene	ND	6.2	ND	1.4	
108-10-1	4-Methyl-2-pentanone	ND	6.2	ND	1.5	
10061-02-6	trans-1,3-Dichloropropene	ND	6.2	ND	1.4	<u> </u>
79-00-5	1,1,2-Trichloroethane	ND	6.2	ND	1.1	
108-88-3	Toluene	930	6.2	250	1.6	
591-78-6	2-Hexanone	ND	6.2	ND	1.5	
124-48-1	Dibromochloromethane	ND	6.2	ND	0.72	
106-93-4	1,2-Dibromoethane	ND	6.2	ND	0.80	
127-18-4	Tetrachloroethene	ND	6.2	ND	0.91	
108-90-7	Chlorobenzene	ND	6.2	ND	1.3	
100-41-4	Ethylbenzene	9,500	6.2	2,200	1.4	
136777-61-2	m,p-Xylenes	22	12	5.0	2.8	<u> </u>
75-25-2	Bromoform	ND	6.2	ND	0.60	1
100-42-5	Styrene	190	6.2	46	1.4	
95-47-6	o-Xylene	21	6.2	4.9	1.4	<u> </u>
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.2	ND	0.90	<u> </u>
541-73-1	1,3-Dichlorobenzene	ND	6.2	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	6.2	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	6.2	ND	1.0	1

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RS Date: 71604

#### **RESULTS OF ANALYSIS** Page 3 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY1-C1-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-006

### **Tentatively Identified Compounds**

Test Code:

EPA TO-15

Date Collected: 7/1/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/1/04

Analyst:

Michelle Sakamoto

Date Analyzed: 7/8/04

Sampling Media:

Summa Canister

Volume(s) Analyzed:

0.10 Liter(s) 0.010 Liter(s)

Test Notes: Container ID: T

SC00022

Pi 1 = 0.1

Pf 1 = 3.5

D.F. = 1.23

GC / MS Ret. Time	Compound Identification	Concentration μg/m³	Data Qualifier
23.11	Cumene	1,000	
23.95	Propylbenzene	400	
24.13	3-Ethyltoluene	400	
24.59	alpha-Methylstyrene	3,000	
25.40	C <sub>10</sub> H <sub>14</sub> Aromatic Compound	2,000	
25.63	C <sub>9</sub> H <sub>10</sub> Compound	3,000	
26.14	Diethylbenzene Isomer	2,000	
26.30	Acetophenone	500	
26.27	Diethylbenzene Isomer	1,000	
26.41	Diethylbenzene Isomer	700	
27.31	C <sub>10</sub> H <sub>12</sub> Compound	1,000	
28.58	Naphthalene	2,000	
28.66	Triethylbenzene Isomer	900	
31.04	Diphenyl	2,000	
31.64	Diphenylmethane	500	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: C Date: 71604

#### **RESULTS OF ANALYSIS** Page 1 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY2-C1-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P2401412-007

Test Code:

Instrument ID:

**EPA TO-15** 

Analyst:

Michelle Sakamoto Summa Canister

Sampling Media:

Test Notes:

Container ID:

SC00575

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Collected: 7/1/04 Date Received: 7/1/04

Date(s) Analyzed: 7/8/04

Volume(s) Analyzed:

0.025 Liter(s)

0.0010 Liter(s)

Pi 1 =

0.0

Pf 1 = 3.5

D.F. = 1.24

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	25	ND	12	<u></u>
75-01-4	Vinyl Chloride	ND	25	ND	9.7	
106-99-0	1,3-Butadiene	ND	25	ND	11	<b> </b>
74-83-9	Bromomethane	ND	25	ND	6.4	<b> </b>
75-00-3	Chloroethane	ND	25	ND	9.4	<b> </b>
67-64-1	Acetone	ND	250	ND	100	<u>                                     </u>
75-69-4	Trichlorofluoromethane	ND	25	ND	4.4	<u> </u>
107-13-1	Acrylonitrile	ND	25	ND	11	1
75-35-4	1,1-Dichloroethene	ND	25	ND	6.3	
75-09-2	Methylene chloride	ND	25	ND	7.1	
76-13-1	Trichlorotrifluoroethane	ND	25	ND	3.2	_
75-15-0	Carbon Disulfide	1,400	25	450	8.0	
156-60-5	trans-1,2-Dichloroethene	ND	25	ND	6.3	
75-34-3	1,1-Dichloroethane	ND	25	ND	6.1	
1634-04-4	Methyl tert-Butyl Ether	ND	25	ND	6.9	
108-05-4	Vinyl Acetate	ND	50	ND	14	
78-93-3	2-Butanone (MEK)	67	25	23	8.4	
156-59-2	cis-1,2-Dichloroethene	ND	25	ND	6.3	
67-66-3	Chloroform	ND	25	ND	5.1	
107-06-2	1,2-Dichloroethane	ND	25	ND	6.1	
71-55-6	1,1,1-Trichloroethane	ND	25	ND	4.5	
71-43-2	Benzene	ND	25	ND	7.8	
56-23-5	Carbon Tetrachloride	ND	25	ND	3.9	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

Verified By:	Ro-	Date: 11604 Page No.:
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### RESULTS OF ANALYSIS Page 2 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY2-C1-T

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-007

Test Code:

**EPA TO-15** 

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Sampling Media: Test Notes:

Container ID:

Instrument ID:

Michelle Sakamoto

Summa Canister

SC00575

Date Collected: 7/1/04

Date Received: 7/1/04

Date(s) Analyzed: 7/8/04

Volume(s) Analyzed:

0.025 Liter(s)

0.0010 Liter(s)

Pf1 = 3.5

D.F. = 1.24

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	25	ND	5.4	<u> </u>
75-27-4	Bromodichloromethane	ND	25	ND	3.7	<u> </u>
79-01-6	Trichloroethene	170	25	32	4.6	<b></b>
10061-01-5	cis-1,3-Dichloropropene	ND	25	ND	5.5	
108-10-1	4-Methyl-2-pentanone	ND	25	ND	6.1	
10061-02-6	trans-1,3-Dichloropropene	ND	25	ND	5.5	<u> </u>
79-00-5	1,1,2-Trichloroethane	ND	25	ND	4.5	<b></b>
108-88-3	Toluene	93	25	25	6.6	<u> </u>
591-78-6	2-Hexanone	ND	25	ND	6.1	<u> </u>
124-48-1	Dibromochloromethane	ND	25	ND	2.9	
106-93-4	1,2-Dibromoethane	ND	25	ND	3.2	_
127-18-4	Tetrachloroethene	13,000	25	1,900	3.7	
108-90-7	Chlorobenzene	ND	25	ND	5.4	
100-41-4	Ethylbenzene	140	25	33	5.7	
136777-61-2	m,p-Xylenes	ND	50	ND	11	
75-25-2	Bromoform	ND	25	ND	2.4	
100-42-5	Styrene	1,400	25	320	5.8	
95-47-6	o-Xylene	ND	25	ND	5.7	
79-34-5	1,1,2,2-Tetrachloroethane	ND	25	ND	3.6	
541-73-1	1,3-Dichlorobenzene	ND	25	ND	4.1	
106-46-7	1,4-Dichlorobenzene	ND	25	ND	4.1	
95-50-1	1,2-Dichlorobenzene	ND	25	ND	4.1	_l

Pi 1 =

0.0

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

Verified By:	RU	Date:	7	116104 Page No.:
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# RESULTS OF ANALYSIS Page 3 of 3

**Client:** 

GeoSyntec Consultants, Inc.

Client Sample ID: Client Project ID:

SF-STY2-C1-T

Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P2401412-007

### **Tentatively Identified Compounds**

Test Code:

EPA TO-15

Date Collected: 7/1/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/1/04 Date Analyzed: 7/8/04

Analyst:

Michelle Sakamoto

Volume(s) Analyzed: 0.025 Liter(s)

Sampling Media: Test Notes:

Summa Canister T

Volume(a) 1 mm/y=

0.0010 Liter(s)

Container ID:

SC00575

Pi 1 = 0.0

Pf 1 = 3.5

D.F. = 1.24

GC / MS Ret. Time	Compound Identification	Concentration μg/m³	Data Qualifier
4.83	Carbonyl Sulfide	200	
5.27	Acetaldehyde	200	
20.44	Trimethylcyclohexane Isomer	100	
24,57	alpha-Methylstyrene	400	
25.39	C <sub>10</sub> H <sub>14</sub> Aromatic Compound	200	
25.92	C <sub>9</sub> H <sub>10</sub> Compound	300	
26.12	Diethylbenzene Isomer	200	
28.57	Naphthalene	100	
31.03	Diphenyl	200	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RG Date: 716104

### RESULTS OF ANALYSIS Page 1 of 3

GeoSyntec Consultants, Inc. Client:

**Method Blank** Client Sample ID:

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P040707-MB

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin

Sampling Media:

Summa Canister

Date Collected: NA Date Received: NA Date(s) Analyzed: 7/7/04

Volume(s) Analyzed:

1.00 Liter(s)

Test Notes:

D.F. = 1.00

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene chloride	ND	0.50	ND	0.14	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	0.50	ND	0.16	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	<u> </u>
108-05-4	Vinyl Acetate	ND	1.0	ND	0.28	<b> </b>
78-93-3	2-Butanone (MEK)	ND	0.50	ND	0.17	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	-
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	<u> </u>
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	<u> </u>
71-43-2	Benzene	ND	0.50	ND	0.16	<b></b>
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	JL

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 716104

# RESULTS OF ANALYSIS Page 2 of 3

Client: GeoSyntec Consultants, Inc.

Client Sample ID: Method Blank

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401412

CAS Sample ID: P040707-MB

Date Collected: NA

Date Received: NA

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin

Sampling Media:

Summa Canister

Date(s) Analyzed: 7/7/04 Volume(s) Analyzed:

1.00 Liter(s)

Test Notes:

D.F. = 1.00

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
136777-61-2	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	<u> </u>
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: R. Date: 71604

Page No.:

### **RESULTS OF ANALYSIS** Page 3 of 3

**Client:** 

GeoSyntec Consultants, Inc.

Client Sample ID: Client Project ID:

Method Blank

Ascon LF/SB0202-31H

CAS Project ID: P2401412 CAS Sample ID: P040707-MB

**Tentatively Identified Compounds** 

Test Code:

**EPA TO-15** 

Analyst:

Aristotle Bragasin Summa Canister

Sampling Media:

Instrument ID:

Test Notes:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Collected: NA Date Received: NA

Date Analyzed: 7/7/04

Volume(s) Analyzed:

1.00 Liter(s)

D.F. = 1.00

GC / MS	Compound Identification	Concentration	Data
Ret. Time		μg/m³	Qualifier
	No Compounds Detected		

# Columbia Analytical Services, Inc. Sample Acceptance Check Form

			Sai	mple Acceptance Che					
Client:	GeoSyntec Cons	ultant	s, Inc.	······	Work order:	P2401412			
Project:	Ascon LF/SB02	02-31I	I						
	ample(s) received		7/1/04	Date opened:	7/1/04	-	SM		
				of this form for custody seals is				m indication	on of
ompliance	or nonconformity. The	ermal pre	servation and pH will or	nly be evaluated either at the re	quest of the client or as	required by the m	ethod/SOP.		<b></b> .
							<u>Yes</u>	No	N/A
1	Were custody sea	ls on o	utside of cooler/Box	x?				X	
	Location of seal	(s)?				Sealing Lid?			X
	Were signature	– and dat	e included?			_			$\overline{\mathbf{X}}$
	Were seals intac								X
			atside of sample cor	ntainer?				X	
	Location of seal					Sealing Lid?			X
	Were signature	_	te included?			_			X
	Were seals intac								X
2			s properly marked v	vith client sample ID?			$\boxtimes$		
3			arrive in good cond				X		
4			papers used and fill				X		
5				ree with custody papers?			X		
	=		eived adequate for				X		
6			ified holding times				$\boxtimes$		
7	•	_		tion) of cooler at receipt a	dhered to?				$\boxtimes$
8	was proper temp		e (mermai preserva Cooler Temperature		°C				
			Blank Temperature		°C				
0	x xx ( :1)		•	ding to method/SOP or Cl	_	mation?		X	
9				ed samples are <b>pH</b> (acid) <b>p</b>		iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii			X
					neserveu.				X
				ence of air bubbles?	a nH and if necess	ary alter it?			$\boxtimes$
				e analyst check the sampl	e pri and <u>it necess</u>	ary and it.			$\boxtimes$
10	Tubes:		e tubes capped and						X
			ey contain moisture						$\boxtimes$
11	Badges:		ne badges properly		1 1 49				$\boxtimes$
		Are d	ual bed badges sepa	arated and individually ca	pped and intact?			<b>L</b>	
	Lab Sample ID		Required	pН	VOA Headspace	Re	ceipt / Pres		
			рH	(as received, if required)	(Presence/Absence)		Comme	ıts	
P24014	12-001				NA				
P24014	12-002				NA				
P24014					NA NA				
P24014					NA NA				
P24014					NA NA				
P24014 P24014					NA NA				
27014									
Explai	n any discrepancies	s: (inch	ade lab sample ID n	iumbers):					

7/2/04 3:39 PM

36

Page of

Air Quality Laboratory

2665 Park Center Drive, Suite D Simi Valley, California 93065 Phone (805) 526-7161

Columbia Analytical Services Man

(805) 526-7270

Fax

An Employee - Owned Company

Chain of Custody Record Analytical Service Request CAS Project No.

Additional Comments (e.g., preservative or specific instructions) のこちらもある Cooler / Blank Comments Tenup\_ Sandard (10 Business Days)

Lypocted Turnamund Time

Expected Turnamund Time 1605 0021 54:11 lime: Time: Fally 4-01-04 7011 Analysis PROJECT L. E 01/61 × Afaron Walove Q D D Q. O O 1500001 15court \$C00022 Scoops 180000 15000125 Sec. 4:33 Controller (Swind#) M Kamb [4]
Received by: (Signature) Received by: (Signature) Received by: (Signature) Lear Container ID (Serial #) SB020-314 01510 1 01490 O6769 0300 2750 580202-31 H 0339 01529 GeoSyntec P.O. #/Billing Information Sampling Location Ascon 57:11 Project Number Common SARACE 1200 7/1/64 1605 アトンメ Project Name Type of Sample Tine: 80-10-08 Lab Sample No. 7 Fax (714)969-0820 Date: Email Mreardon @ geosyntec. com Time Collected 力o. = 9:45 06.30 4 15:19 06:20 cd 1406 58:11 (0:13 6701.04 9:34 Mure) 2100 Marsh # 150 Date Collected <del>-</del> HB, CA 22649 your win Dhoup 7-14) 969-0800 Reardon Relinquised by: (Signature) 54 - 37 42 - V - TR 1.12.なる。ま コープ・ア・ス・ス・エ PAL-F75-1-T CACSYNDER Signature Client Sample ID : Signalue) SF-5741-U-T ナーコ・ストにった か、めて Relinguished by Client/Address Relinguished Mike Contact



## LABORATORY REPORT

Client:

GEOSYNTEC CONSULTANTS, INC.

Date of Report:

07/20/04

Address:

2100 Main Street, Suite 150

Date Received:

07/02/04

Huntington Beach, CA 92648

CAS Project No:

P2401414

Contact:

Mr Mike Reardon

Purchase Order:

SB0202-31H

Client Project ID: Ascon LF/SB0202-31H

Two (2) Tedlar Bag Samples labeled:

"SF-STY1-C2-S"

and "SF-STY2-C2-S"

The samples were received at the laboratory under chain of custody on July 2, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

# Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per modified SCAQMD Method 307-91 and ASTM D 5504-01 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Reviewed and Approved:

Reviewed and Approved:

Zheng Wang Analytical Chemist Air Quality Laboratory Wade Henton GC-VOA Team Leader Air Quality Laboratory

Page 1 of lo

### RESULTS OF ANALYSIS Page 1 of 1

GeoSyntec Consultants, Inc. Client:

SF-STY1-C2-S Client Sample ID:

Ascon LF/SB0202-31H Client Project ID:

CAS Project ID: P2401414 CAS Sample ID: P2401414-001

Test Code:

ASTM D 5504-01

Instrument ID: Analyst:

Agilent 6890A/GC13/SCD

Sampling Media:

Tedlar Bag

Test Notes:

Zheng Wang/Wade Henton

Date Received: 7/2/04 Date Analyzed: 7/2/04 Time Analyzed: 11:28

Date Collected: 7/1/04

Time Collected: 13:05

Volume(s) Analyzed:

1.0 ml(s)

D.F.=1.00

	T	Result	MRL	Result	MRL	Data
CAS#	Compound	Tresum				Qualifier
CAS#	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	7.06	7.00	5.07	5.00	
463-58-1	Carbonyl Sulfide	37.3	12.0	15.2	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	48.2	7.80	15.5	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	<u> </u>
352-93-2	Diethyl Sulfide	18.1	18.0	4.91	5.00	J
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	15.2	18.0	4.23	5.00	J
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	_
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The analyte was positively identified below the laboratory method reporting limit;

the associated numerical value is considered estimated.

Verified By:	buh	Date:	01/19/04	<b></b>
• ——				Page No

### RESULTS OF ANALYSIS Page 1 of 1

GeoSyntec Consultants, Inc. Client:

CAS Project ID: P2401414 SF-STY2-C2-S Client Sample ID:

CAS Sample ID: P2401414-002 Ascon LF/SB0202-31H Client Project ID:

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst:

Zheng Wang/Wade Henton

Sampling Media:

Tedlar Bag

Test Notes:

Date Collected: 7/1/04

Time Collected: 13:10 Date Received: 7/2/04

Date Analyzed: 7/2/04

Time Analyzed: 11:52

Volume(s) Analyzed:

 $1.0 \, ml(s)$ 

D.F.=1.00

	T	Result	MRL	Result	MRL	Data
CAS#	Compound	1105410				Qualifier
CAS#	Compound	μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	22.3	7.00	16.0	5.00	
463-58-1	Carbonyl Sulfide	95.7	12.0	39.0	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	428	7.80	137	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	_
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	<b></b>
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Date: orlinion KUH Verified By:\_\_\_\_ Page No.:

# RESULTS OF ANALYSIS Page 1 of 1

Client: GeoSyntec Consultants, Inc.

Client Sample ID: Method Blank

Client Project ID: Ascon LF/SB0202-31H

CAS Project ID: P2401414

CAS Sample ID: P040702-MB

Test Code:

ASTM D 5504-01

Instrument ID:

Agilent 6890A/GC13/SCD

Analyst: Sampling Media: Zheng Wang/Wade Henton

Test Notes:

Tedlar Bag

Date Received: NA
Date Analyzed: 7/02/04
Time Analyzed: 10:27

Date Collected: NA

Time Collected: NA

Time Analyzed. 10.27

Volume(s) Analyzed:

1.0 ml(s)

D.F.=1.00

	1	Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
		μg/m³	μg/m³	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	<u> </u>
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	<u>                                     </u>

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By:	KUH	Date:	07/19/04	
			Page M	ο.

ige No.:

# Columbia Analytical Services, Inc. Sample Acceptance Check Form

Circle   GeoSyntec Consultants   Inc.   Work order:   P2401414   P3400   P34014   P3400   P34014   P3400   P34014   P3400   P34014   P3400   P34014   P3400   P34014   P34014   P3400   P34014   P3400   P34014   P3400   P34014   P3400   P34014	<b>a</b> 1.		14. 4		ample Acceptance Cned	Vork order:	P2401414			
Sample(s) received on: 7/2/04   Date opened: 7/2/04   by: SM-   202: This form is used for all samples received by CAS. The use of this form for cusady seal is stanctly must to indicate proscreoblements and one an indication of the prospective or noneconformity. Thermal preservation and play will only be evaluated either as the request of the chemi or as required by the must hold the prospective or noneconformity. Thermal preservation and play will only be evaluated either as the request of the chemi or as required by the must hold the prospective of the chemi or as required by the must hold the prospective of the chemi or as required by the must hold the prospective of the chemi or as required by the must hold the prospective of the chemi or as required by the chemical prospective of the chemical pro						, ork order.				
Are sample containers properly marked with client sample ID?  Were custed years is naturally was a formal process of the client of sample containers are received adequate for analysis?  Were sample containers arrive in good condition?  Were custed years in tact?  Were custed years on outside of cooler. Box?  Location of seal(s)?  Were seals intact?  Were seals intact?  Were seals intact?  Were sample containers properly marked with client sample ID?  Were sample containers properly marked with client sample ID?  Were sample containers properly marked with client sample ID?  Was sample containers arrive in good condition?  Was sample containers represent the sample of cooler at receipt adhered to?  Was sample within specified holding times?  Solid preservation necessary, according to methodsOP or Client specified information?  Is pH (acid) preservation necessary, according to methodsOP or Client specified information?  Is there a client indication that the submitted samples are pH (acid) preserved?  Does the client/methodsOP require that the analyst check the sample pH and if necessary after it?  Does the client/methodsOP require that the analyst check the sample pH and if necessary after it?  Does the client/methodsOP require that the analyst check the sample pH and if necessary after it?  Does the client/methodsOP require that the analyst check the sample pH and if necessary after it?  Lab Sample ID Required.  PH (ge received, if required) NA  (GenerocciAbsonce) Community  (PosenocciAbsonce) Community  (PosenocciAbsonce) Community					Date opened:	7/2/04	bv:	SM		
Were custody seals on outside of cooler/Box?   Sealing Lid?   Se	5	ample(s) received	1 OH: -	inad by CAS. The use			-	e and not as a	ın indicatio	on of
Were custody seals on outside of cooler/Box?   Sealing Lid?   Se	ote: This f	form is used for <u>all</u> sam	pies rece	eservation and nH will	only be evaluated either at the re-	quest of the client or as	required by the m	ethod/SOP.		
Nere custody seals on outside of cooler/Box?   Sealing Lid?   Se	impiiance	or noncomormity. The	imai pic	servation and pri with	only be evaluated than			<u>Yes</u>	No	N/A
Location of seal(s)?   Sealing Lid?	1	Were custody sea	is on o	utside of cooler/Be	ox?				X	
Were seals intact?	1						Sealing Lid?			$\boxtimes$
Were scals intact?				te included?			<del>-</del>			X
Were custody seals on outside of sample container?				e moradod.						X
Location of seal(s)?   Sealing Lid?				utside of sample co	ontainer?				$\boxtimes$	
Were signature and date included?				atorae or omnipre			Sealing Lid?			X
Were sals intact?  Were sample containers properly marked with client sample ID?  Did sample containers arrive in good condition?  Were chain-of-custody papers used and filled out?  Did sample container labels and/or tags agree with custody papers?  Was sample volume received adequate for analysis?  Are samples within specified holding times?  Was proper temperature (thermal preservation) of cooler at receipt adhered to?  Cooler Temperature NA °C  Blank Temperature NA °C  Blank Temperature NA °C  Is there a client indication that the submitted samples are pH (acid) preserved?  Were YOA vials checked for presence/absence of air bubbles?  Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?  Do they contain moisture?  Do they contain moisture?  Do they contain moisture?  Lab Sample ID Required pH VOA Headspace (Presence/Absence)  Receipt / Preservation  PH VOA Headspace (Preservation)  PH VOA Headspace (Preservation)  PP2401414-001  NA  PP2401414-002  Lab Sample ID Required pH VOA Headspace (Presence/Absence)  PH VOA Headspace (Preservation)  Comments			-	te included?			<del></del>			
Were sample containers properly marked with client sample ID?										
Did sample containers arrive in good condition?  Were chain-of-custody papers used and filled out?  Did sample container labels and/or tags agree with custody papers?  Was sample volume received adequate for analysis?  Are samples within specified holding times?  Was proper temperature (thermal preservation) of cooler at receipt adhered to?  Cooler Temperature  NA  CO  Blank Temperature  NA  CO  Is pH (acid) preservation necessary, according to method/SOP or Client specified information?  Is there a client indication that the submitted samples are pH (acid) preserved?  Were YOA vials checked for presence/absence of air bubbles?  Does the clienti-method/SOP require that the analyst check the sample pH and if necessary alter it?  Do they contain moisture?  Tubes:  Are the tubes capped and intact?  Do they contain moisture?  Do they contain moisture?  Are dual bed badges separated and individually capped and intact?  Are dual bed badges separated and individually capped and intact?  Are dual bed badges separated and individually capped and intact?  P2401414-001  Required  pH  VOA Headspace  Receipt / Preservation  Comments  P2401414-002  NA  P2401414-002  NA  P2401414-002  NA  P2401414-002  NA  P2401414-002  NA  NA  P2401414-002	2			s properly marked	with client sample ID?			X		
Were chain-of-custody papers used and filled out?  Did sample container labels and/or tags agree with custody papers?  Was sample volume received adequate for analysis?  Are samples within specified holding times?  Was proper temperature (thermal preservation) of cooler at receipt adhered to?  Cooler Temperature NA °C  Blank Temperature NA °C										
Did sample container labels and/or tags agree with custody papers?  Was sample volume received adequate for analysis?  Are samples within specified holding times?  Was proper temperature (thermal preservation) of cooler at receipt adhered to?  Cooler Temperature NA °C  Blank Temperature NA °C  Blank Temperature NA °C  9 Is pH (acid) preservation necessary, according to method/SOP or Client specified information?  Is there a client indication that the submitted samples are pH (acid) preserved?  Were VOA vials checked for presence/absence of air bubbles?  Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?  Do they contain moisture?  Do they contain moisture?  Do they contain moisture?  Are dual bed badges separated and individually capped and intact?  Are dual bed badges separated and individually capped and intact?  Are dual bed badges separated and individually capped and intact?  P2401414-002  Required pH VOA Headspace Receipt / Preservation  P2401414-002  NA  P2401414-002  NA  NA  P2401414-002  Required NA  NA  P2401414-002  NA  NA  P2401414-001  NA  NA  P2401414-002  NA  NA										
Are samples within specified holding times?  Was proper temperature (thermal preservation) of cooler at receipt adhered to?  Cooler Temperature NA COOLER		Did sample cont	ainer la	abels and/or tags a	gree with custody papers?			_		
Are samples within specified holding times?  Was proper temperature (thermal preservation) of cooler at receipt adhered to?  Cooler Temperature NA °C Blank Temperature NA °C Blank Temperature NA °C  Step H (acid) preservation necessary, according to method/SOP or Client specified information?	6									
Was proper temperature (thermal preservation) of cooler at receipt adhered to?    Cooler Temperature	7									
Blank Temperature NA	8				ration) of cooler at receipt a			L	Ц	(X)
Some processor			(	Cooler Temperatur						
Second preservation necessary, according to method/SOP or Chein specified information.   Second preserved   Second preserved preserved   Second preserved preserved   Second preserved									ΙSI	П
Is there a client indication that the submitted samples are pH (acid) preserved:  Were VOA vials checked for presence/absence of air bubbles?  Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?  10 Tubes: Are the tubes capped and intact?  Do they contain moisture?  11 Badges: Are the badges properly capped and intact?  Are dual bed badges separated and individually capped and intact?  Are dual bed badges separated and individually capped and intact?  Lab Sample ID Required pH VOA Headspace (Presence/Absence) Comments  P2401414-001 NA  P2401414-002 NA	9	Is pH (acid) pres	ervatio	on necessary, acco	rding to method/SOP or C	lient specified info	rmation?			
Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?  Tubes: Are the tubes capped and intact?  Do they contain moisture?  Do they contain moisture?  Are the badges properly capped and intact?  Are dual bed badges separated and individually capped and intact?  Are dual bed badges separated and individually capped and intact?  Required pH VOA Headspace (Presence/Absence)  P2401414-001  NA  P2401414-002  NA  NA  NA  P2401414-002  NA  NA  NA  NA  NA  NA  NA  NA  NA  N						preserved?		_		
Does the client/method/SOP require that the analyst check the sample pit and infacts and the sample pit and infacts are the sample pit and infacts and the sample pit and infacts are the sample pit are the sa		Were <b><u>VOA vial</u></b>	<u>s</u> check	ted for presence/al	osence of air bubbles?	1	ory olter it?			
Are the tubes capped and intact?  Do they contain moisture?  Are the badges properly capped and intact?  Are dual bed badges separated and individually capped and intact?  Are dual bed badges separated and individually capped and intact?  Lab Sample ID  Required  pH  (as received, if required)  NA  P2401414-001  NA  P2401414-002  NA  NA  P2401414-002  NA  NA  P2401414-002  NA  NA  P2401414-002						le pH and it necess	sary and it:			
Do they contain moisture?	10	Tubes:								
Are dual bed badges separated and individually capped and intact?  Lab Sample ID  Required pH (as received, if required) P2401414-001 P2401414-002  NA NA NA  NA  NA  NA  NA  NA  NA  NA										$\boxtimes$
Lab Sample ID  Required pH (as received, if required) P2401414-001 P2401414-002  NA	11	Badges:				nned and intact?				X
P2401414-001   NA   NA   P2401414-002   NA   P240144-002   NA   P240144-			Are c	lual bed badges se	parated and individually ca	pped and mace.				
P2401414-001 P2401414-002 NA NA NA NA		Lab Sample ID		Required						
P2401414-002 NA  P2401414-002 INA  INA  INA  INA  INA  INA  INA  INA				pН	(as received, if required)			Comme	uts	
P2401414-002	P24014	14-001				1				
	P24014	14-002				NA				
The state of the s										
- A de la la comple ID numbers):						<del>                                     </del>				
- 1 i										
Evident any discrepancies: (include lan sample II / HUHIDEIS).	Exal	in any diagramanais	e (incl	lude lab sample IF	numbers):					

401414SR XLS - cooler - Page 1 of 1

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2665 Park Center Drive, Suite D Simi Valley, California 93065 Air Quality Laboratory Phone (805) 526-7161

Columbia Analytical Services No.

Analytical Service Request Chain of Custody Record

Additional Comments (e.g., preservative or specific instructions) Cooler / Blank せさっちゃん Comments Temp\_ CAS Project No. Standard (10 Business Days)

24 Hr 48Hr 3Day 4Day 5Day

Expected Funnand Time 2/04 1013 803/ 2 Time: Time: Analysis Date: SALENE SPECIES Malone X Sample Volume (Liters) \* Low charge Sampling Location Colt BERCH Flow Controller (Serial #) Received by: (Signature) Received by: (Signature) Receiyed by: (Signature) SBOUM-31H Container ID (Serial #) Project Number SB0202 - 31H CEOSYNTEX ASCON F P.O. #/Billing Information 1640 Project Name TEDUTK TEDLAR (508 Type of Sample Time: Time: Time: (805) 526-7270 7.01-07 4-01-04 Lab Sample No. HAUVINGTON BEACH, ON REHTB Date: Date: Fax (7,4) 969-0820 Cliend Address GEOSYNTEC CONSILLTANTS Fax Email M. REARDON @ GEOSYNTEC . COM /Time Collected 508 1310 SIDE MAINST #150 10-0-60 Date Collected 7-01-04 An Employee - Owned Company NIE COACOL Relinquished by: (Signature) Phone (中) 969-0800 Relinquished by: (Signature) S-20-1815-78 Relinquished by: (Signature) SF-5172-C2-5 Client Sample ID Xarri Contact

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#### LABORATORY REPORT

Client:

GEOSYNTEC CONSULTANTS, INC.

Date of Report:

07/22/04

Address:

2100 Main Street, Suite 150

Date Received:

07/07/04

Huntington Beach, CA 92648

CAS Project No:

P2401446

Contact:

Mr. Mike Reardon

Purchase Order:

SB0202 / 31H

Client Project ID: Ascon LF/SB0202 / 31H

Two (2) Stainless Steel Summa Canisters labeled:

"SF-STY1-C2-T" and "SF-STY2-C2-T"

The samples were received at the laboratory under chain of custody on July 7, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

# C1 through C6 Hydrocarbon Analysis

The samples were analyzed per modified EPA Method TO-3 for  $C_1$  through  $>C_6$  hydrocarbons using a gas chromatograph equipped with a flame ionization detector (FID).

# Volatile Organic Compound Analysis

The samples were also analyzed by combined gas chromatography/mass spectrometry (GC/MS) for selected volatile organic compounds and tentatively identified compounds. The analyses were performed according to the methodology outlined in EPA Method TO-15. The analyses were performed by gas chromatography/mass spectrometry, utilizing a direct cryogenic trapping technique. The analytical system used was comprised of a Hewlett Packard Model 5972 GC/MS/DS interfaced to a Tekmar AutoCan Elite whole air inlet system/cryogenic concentrator. A 100% Dimethylpolysiloxane capillary column (RT<sub>x</sub>-1, Restek Corporation, Bellefonte, PA) was used to achieve chromatographic separation.

Reviewed and Approved:

Aut 16 Linguis

Reviewed and Approved:

Aristotle Bragasin Analytical Chemist Air Quality Laboratory Wade Henton GC-VOA Team Leader Air Quality Laboratory

Page 1 of 10

CAS Project No:

P2401446

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

# RESULTS OF ANALYSIS Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

SF-STY1-C2-T

CAS Project ID: P2401446

**Client Project ID:** 

Ascon LF/SB0202 / 31H

CAS Sample ID: P2401446-001

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst: Sampling Media: Regan Lau

Summa Canister

Date Analyzed: 7/9/04 Volume(s) Analyzed:

Date Collected: 7/1/04

Date Received: 7/7/04

1.0 ml

Test Notes:

Container ID:

SC00158

Pi 1 = 0.0

Pf 1 = 3.5

D.F. = 1.24

Company	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	
Methane	0.75	0.62	
C <sub>2</sub> as Ethane	ND	0.62	
C <sub>3</sub> as Propane	ND	0.62	
C <sub>4</sub> as n-Butane	ND	0.62	
C <sub>5</sub> as n-Pentane	ND	0.62	
C <sub>6</sub> as n-Hexane	ND	0.62	
C <sub>6</sub> + as n-Hexane	4.9	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

### RESULTS OF ANALYSIS Page 1 of 1

**Client:** 

GeoSyntec Consultants, Inc.

**Client Sample ID:** Client Project ID: SF-STY2-C2-T

Ascon LF/SB0202 / 31H

CAS Project ID: P2401446

CAS Sample ID: P2401446-002

Test Code:

Modified EPA TO-3

Instrument ID:

HP5890II/GC8/FID

Analyst:

Regan Lau

Sampling Media:

Summa Canister

Test Notes:

Container ID:

SC00537

Date Collected: 7/1/04 Date Received: 7/7/04

Date Analyzed: 7/9/04

Volume(s) Analyzed:

1.0 ml

0.1 Pf 1 =3.5 Pi 1 =

D.F. = 1.23

	Result	MRL	Data Qualifier
Compound	ppmV	ppmV	
Methane	1.5	0.61	
C <sub>2</sub> as Ethane	ND	0.61	
C <sub>3</sub> as Propane	ND	0.61	
C <sub>4</sub> as n-Butane	ND	0.61	
C <sub>5</sub> as n-Pentane	ND	0.61	
C <sub>6</sub> as n-Hexane	ND	0.61	
C <sub>6</sub> + as n-Hexane	ND	1.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

#### **RESULTS OF ANALYSIS**

Page 1 of 1

Client:

GeoSyntec Consultants, Inc.

**Client Sample ID: Client Project ID:**  Method Blank

Ascon LF/SB0202 / 31H

CAS Project ID: P2401446

CAS Sample ID: P040709-MB

Test Code: Instrument ID: Modified EPA TO-3

HP5890II/GC8/FID

Analyst:

Regan Lau

Summa Canister

Sampling Media:

Date Received: NA Date Analyzed: 7/09/04

Date Collected: NA

Volume(s) Analyzed:

1.0 ml

Test Notes:

D.F. = 1.00

7	Result	MRL	Data
Compound	nam.V	ppmV	Qualifier
	ppmV		<u> </u>
Methane	ND	0.50	
C <sub>2</sub> as Ethane	ND	0.50	1
C <sub>3</sub> as Propane	ND	0.50	
C <sub>4</sub> as n-Butane	ND	0.50	
C <sub>5</sub> as n-Pentane	ND	0.50	
C <sub>6</sub> as n-Hexane	ND	0.50	
C <sub>6</sub> + as n-Hexane	ND	1.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

## RESULTS OF ANALYSIS

Page 1 of 3

GeoSyntec Consultants, Inc. Client:

Client Sample ID: SF-STY1-C2-T

CAS Project ID: P2401446 CAS Sample ID: P2401446-001 Client Project ID: Ascon LF/SB0202 / 31H

Test Code:

**EPA TO-15** 

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin Summa Canister

Sampling Media: Test Notes:

Container ID: SC00158

Date Collected: 7/1/04 Date Received: 7/7/04

Date(s) Analyzed: 7/9 - 7/10/04

Volume(s) Analyzed:

0.050 Liter(s)

0.010 Liter(s)

Pf 1 = 3.50.0 Pi 1 =

D.F. = 1.24

CAS#	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
		μg/m ND	12	ND	6.0	
74-87-3	Chloromethane	ND	12	ND	4.9	
75-01-4	Vinyl Chloride	ND ND	12	ND	5.6	
106-99-0	1,3-Butadiene		12	ND	3.2	<b> </b>
74-83-9	Bromomethane	ND ND		ND	4.7	1
75-00-3	Chloroethane	ND	12	64	52	1
67-64-1	Acetone	150	120	<u> </u>	2.2	<b> </b>
75-69-4	Trichlorofluoromethane	ND	12	ND		-
107-13-1	Acrylonitrile	ND	12	ND	5.7	-
75-35-4	1,1-Dichloroethene	ND	12	ND	3.1	
75-09-2	Methylene chloride	ND	12	ND	3.6	
76-13-1	Trichlorotrifluoroethane	ND	12	ND	1.6	<u> </u>
75-15-0	Carbon Disulfide	ND	12	ND	4.0	
156-60-5	trans-1,2-Dichloroethene	ND	12	ND	3.1	<u> </u>
75-34-3	1,1-Dichloroethane	ND	12	ND	3.1	_
1634-04-4	Methyl tert-Butyl Ether	ND	12	ND	3.4	
108-05-4	Vinyl Acetate	ND	25	ND	7.0	
78-93-3	2-Butanone (MEK)	ND	12	ND	4.2	_
156-59-2	cis-1,2-Dichloroethene	ND	12	ND	3.1	
67-66-3	Chloroform	ND	12	ND	2.5	
	1,2-Dichloroethane	ND	12	ND	3.1	
107-06-2	1,1,1-Trichloroethane	ND	12	ND	2.3	
71-55-6		1,700	12	540	3.9	
71-43-2	Benzene	1,700 ND	12	ND	2.0	
56-23-5	Carbon Tetrachloride		<u> </u>	<u> </u>	1 2.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: Ro- Date: 7/21/04

#### **RESULTS OF ANALYSIS**

Page 2 of 3

GeoSyntec Consultants, Inc. Client:

Client Sample ID: SF-STY1-C2-T

Client Project ID: Ascon LF/SB0202 / 31H

CAS Project ID: P2401446

CAS Sample ID: P2401446-001

Test Code:

EPA TO-15

SC00158

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin

Sampling Media: Test Notes: Container ID:

Summa Canister

Pi 1 =

0.0

Date Collected: 7/1/04

Pf 1 = 3.5

Date Received: 7/7/04

Date(s) Analyzed: 7/9 - 7/10/04

Volume(s) Analyzed: 0.050 Liter(s)

0.010 Liter(s)

D.F. = 1.24

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	12	ND	2.7	
75-27-4	Bromodichloromethane	ND	12	ND	1.9	<b> </b>
79-01-6	Trichloroethene	ND	12	ND	2.3	<b> </b>
10061-01-5	cis-1,3-Dichloropropene	ND	12	ND	2.7	
108-10-1	4-Methyl-2-pentanone	ND	12	ND	3.0	ļ
10061-02-6	trans-1,3-Dichloropropene	ND	12	ND	2.7	<b> </b>
79-00-5	1,1,2-Trichloroethane	ND	12	ND	2.3	
108-88-3	Toluene	940	12	250	3.3	
591-78-6	2-Hexanone	ND	12	ND	3.0	
124-48-1	Dibromochloromethane	ND	12	ND	1.5	<u> </u>
106-93-4	1,2-Dibromoethane	ND	12	ND	1.6	1
127-18-4	Tetrachloroethene	ND	12	ND	1.8	
108-90-7	Chlorobenzene	ND	12	ND	2.7	
100-41-4	Ethylbenzene	7,100	12	1,600	2.9	
136777-61-2	m,p-Xylenes	36	25	8.4	5.7	
75-25-2	Bromoform	ND	12	ND	1.2	
100-42-5	Styrene	120	12	27	2.9	
95-47-6	o-Xylene	23	12	5.2	2.9	
79-34-5	1,1,2,2-Tetrachloroethane	ND	12	ND	1.8	
541-73-1	1,3-Dichlorobenzene	ND	12	ND	2.1	
106-46-7	1,4-Dichlorobenzene	ND	12	ND	2.1	
95-50-1	1,2-Dichlorobenzene	ND	12	ND	2.1	<u></u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

Verified By:	Ro-	Date: 7/21/04	
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# RESULTS OF ANALYSIS Page 3 of 3

Client: GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY1-C2-T CAS Project ID: P2401446
Client Project ID: Ascon LF/SB0202 / 31H CAS Sample ID: P2401446-001

# **Tentatively Identified Compounds**

Test Code:

EPA TO-15

SC00158

Date Collected: 7/1/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/7/04

Analyst:

Aristotle Bragasin

Date Analyzed: 7/10/04

Sampling Media:

Summa Canister

Volume(s) Analyzed: 0.050 Liter(s)

0.010 Liter(s)

Test Notes: Container ID: T

Pi 1 = 0.0

Pf 1 = 3.5

D.F. = 1.24

GC / MS Ret. Time	Compound Identification	Concentration μg/m³	Data Qualifier
6.16	Ethanol	200	
6.88	Isopropyl Alcohol	400	
23.09	Cumene	500	
23.94	Propylbenzene	200	
24.12	3-Ethyltoluene	200	
24.57	alpha-Methylstyrene	3,000	
24.84	C <sub>9</sub> H <sub>10</sub> Compound	200	
25.39	C <sub>10</sub> H <sub>14</sub> Aromatic Compound	300	
25.61	C <sub>9</sub> H <sub>10</sub> Compound	4,000	
26.12	Diethylbenzene Isomer	600	
26.26	Diethylbenzene Isomer	400	
27.31	C <sub>10</sub> H <sub>12</sub> Compound	500	
28.56	Naphthalene	600	
30.91	C <sub>14</sub> H <sub>28</sub> Compound	200	
31.03	Diphenyl	300	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: Date: 7/2/104

### **RESULTS OF ANALYSIS** Page 1 of 3

GeoSyntec Consultants, Inc. Client:

CAS Project ID: P2401446 Client Sample ID: SF-STY2-C2-T CAS Sample ID: P2401446-002 Client Project ID: Ascon LF/SB0202 / 31H

Test Code: Instrument ID: EPA TO-15

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin

Sampling Media: Test Notes:

Summa Canister

SC00537 Container ID:

Date Collected: 7/1/04

Date Received: 7/7/04

Date(s) Analyzed: 7/10/04

Volume(s) Analyzed:

1.00 Liter(s)

0.10 Liter(s)

Pf 1 = 3.50.1 Pi 1 =

D.F. = 1.23

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.62	ND	0.30	
75-01-4	Vinyl Chloride	ND	0.62	ND	0.24	
106-99-0	1,3-Butadiene	ND	0.62	ND	0.28	
74-83-9	Bromomethane	ND	0.62	ND	0.16	
75-00-3	Chloroethane	ND	0.62	ND	0.23	
67-64-1	Acetone	96	6.2	41	2.6	
75-69-4	Trichlorofluoromethane	ND	0.62	ND	0.11	ļ
107-13-1	Acrylonitrile	ND	0.62	ND	0.28	
75-35-4	1,1-Dichloroethene	ND	0.62	ND	0.16	ļ
75-09-2	Methylene chloride	ND	0.62	ND	0.18	1
76-13-1	Trichlorotrifluoroethane	ND	0.62	ND	0.080	<u> </u>
75-15-0	Carbon Disulfide	160	0.62	51	0.20	<b> </b>
156-60-5	trans-1,2-Dichloroethene	ND	0.62	ND	0.16	<u> </u>
75-34-3	1,1-Dichloroethane	ND	0.62	ND	0.15	
1634-04-4	Methyl tert-Butyl Ether	ND	0.62	ND	0.17	<u> </u>
108-05-4	Vinyl Acetate	ND	1.2	ND_	0.35	
78-93-3	2-Butanone (MEK)	4.9	0.62	1.7	0.21	<u> </u>
156-59-2	cis-1,2-Dichloroethene	ND	0.62	ND	0.16	
67-66-3	Chloroform	3.2	0.62	0.66	0.13	
107-06-2	1,2-Dichloroethane	ND	0.62	ND	0.15	<u> </u>
71-55-6	1,1,1-Trichloroethane	ND	0.62	ND	0.11	<b></b>
71-43-2	Benzene	2.1	0.62	0.65	0.19	<b></b>
56-23-5	Carbon Tetrachloride	ND	0.62	ND	0.098	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

#### RESULTS OF ANALYSIS

Page 2 of 3

GeoSyntec Consultants, Inc. Client:

SF-STY2-C2-T Client Sample ID:

Client Project ID: Ascon LF/SB0202 / 31H

CAS Project ID: P2401446 CAS Sample ID: P2401446-002

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin Summa Canister

Sampling Media:

Container ID:

Test Notes: SC00537

Date Collected: 7/1/04 Date Received: 7/7/04 Date(s) Analyzed: 7/10/04

Volume(s) Analyzed:

1.00 Liter(s)

0.10 Liter(s)

10

0.1 Pi 1 =

Pf 1 = 3.5

D.F. = 1.23

CAS#	Compound	Result µg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.62	ND	0.13	
75-27-4	Bromodichloromethane	ND	0.62	ND	0.092	
79-01-6	Trichloroethene	ND	0.62	ND	0.11	<b> </b>
10061-01-5	cis-1,3-Dichloropropene	ND	0.62	ND	0.14	
108-10-1	4-Methyl-2-pentanone	0.64	0.62	0.16	0.15	<b></b>
10061-02-6	trans-1,3-Dichloropropene	ND	0.62	ND	0.14	<b> </b>
79-00-5	1,1,2-Trichloroethane	ND	0.62	ND	0.11	
108-88-3	Toluene	3.2	0.62	0.84	0.16	
591-78-6	2-Hexanone	1.3	0.62	0.31	0.15	1
124-48-1	Dibromochloromethane	ND	0.62	ND	0.072	
106-93-4	1.2-Dibromoethane	ND	0.62	ND	0.080	_
127-18-4	Tetrachloroethene	1.3	0.62	0.20	0.091	
108-90-7	Chlorobenzene	8.3	0.62	1.8	0.13	
108-90-7	Ethylbenzene	8.9	0.62	2.1	0.14	
136777-61-2	m,p-Xylenes	4.6	1.2	1.1	0.28	
	Bromoform	ND	0.62	ND	0.060	
75-25-2		610	0.62	140	0.14	
100-42-5	Styrene	3.0	0.62	0.69	0.14	
95-47-6	0-Xylene	ND	0.62	ND	0.090	
79-34-5	1,1,2,2-Tetrachloroethane	1.1	0.62	0.18	0.10	
541-73-1	1,3-Dichlorobenzene	8.0	0.62	1.3	0.10	
106-46-7	1,4-Dichlorobenzene	0.96	0.62	0.16	0.10	
95-50-1	1,2-Dichlorobenzene		1 0.02			

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

Verified By: Date: Date:	Verified By:_	RU	Date:	Page No
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#### **RESULTS OF ANALYSIS** Page 3 of 3

**Client:** 

GeoSyntec Consultants, Inc.

Client Sample ID: SF-STY2-C2-T

CAS Project ID: P2401446

Client Project ID:

Ascon LF/SB0202 / 31H

CAS Sample ID: P2401446-002

### **Tentatively Identified Compounds**

Test Code:

EPA TO-15

Date Collected: 7/1/04

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Date Received: 7/7/04

Analyst:

Aristotle Bragasin

Date Analyzed: 7/10/04

Sampling Media:

Summa Canister

1.00 Liter(s) Volume(s) Analyzed: 0.10 Liter(s)

Test Notes:

T

Container ID:

SC00537

Pi 1 = 0.1

Pf 1 = 3.5

D.F. = 1.23

GC / MS Ret. Time	Compound Identification	Concentration μg/m³	Data Qualifier
6.21	Ethanol	200	
6.94	Isopropyl Alcohol	200	
23.71	Benzaldehyde	200	
24.58	alpha-Methylstyrene	200	
25.61	C₀H₁₀ Compound	100	
26.19	Acetophenone	80	
28.56	Naphthalene	70	
30.91	C <sub>14</sub> H <sub>28</sub> Compound	50	
31.03	Diphenyl	100	
31.64	Diphenylmethane Isomer	100	
32.41	Methyldiphenyl Isomer + C <sub>14</sub> H <sub>14</sub> Compound	90	
32.91	Stilbene Isomer + Dibenzyl	80	
33.39	C <sub>15</sub> H <sub>16</sub> Compound	70	
33.63	C <sub>14</sub> H <sub>14</sub> Compound	60	
33.99	$C_{14}H_{14}$ Compound + $C_{16}H_{18}$ Compound	60	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: Date: Date: Page

#### **RESULTS OF ANALYSIS** Page 1 of 3

GeoSyntec Consultants, Inc. Client:

CAS Project ID: P2401446 Client Sample ID: Method Blank

CAS Sample ID: P040709-MB Client Project ID: Ascon LF/SB0202 / 31H

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin

Sampling Media:

Summa Canister

Test Notes:

Date Collected: NA Date Received: NA Date(s) Analyzed: 7/9/04

Volume(s) Analyzed:

1.00 Liter(s)

D.F. = 1.00

CAS#	Compound	Result	MRL	Result	MRL	Data
		μg/m³	μg/m³	ppbV	ppbV	Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene chloride	ND	0.50	ND	0.14	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	0.50	ND	0.16	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	ļ
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	1.0	ND	0.28	<b> </b>
78-93-3	2-Butanone (MEK)	ND	0.50	ND	0.17	<b> </b>
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	<b> </b>
67-66-3	Chloroform	ND	0.50	ND	0.10	ļ
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	ļ
71-43-2	Benzene	ND	0.50	ND	0.16	<b> </b>
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: Date: Date: Page No.

#### RESULTS OF ANALYSIS

Page 2 of 3

Client:

GeoSyntec Consultants, Inc.

Client Sample ID:

Method Blank

Client Project ID: Ascon LF/SB0202 / 31H

CAS Project ID: P2401446

CAS Sample ID: P040709-MB

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin

Sampling Media:

Summa Canister

Test Notes:

Date Collected: NA Date Received: NA

Date(s) Analyzed: 7/9/04

Volume(s) Analyzed:

1.00 Liter(s)

D.F. = 1.00

CAS#	Compound	Result μg/m³	MRL μg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	ļ
136777-61-2	m,p-Xylenes	ND	1.0	ND	0.23	ļ
75-25-2	Bromoform	ND	0.50	ND	0.048	<u> </u>
100-42-5	Styrene	ND	0.50	ND	0.12	ļ
95-47-6	o-Xylene	ND	0.50	ND	0.12	<b></b>
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	<b> </b>
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	<b> </b>
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	<b></b>
95-50-1	1,2-Dichlorobenzene	ND_	0.50	ND	0.083	<u> </u>

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: Ro Date: 7 All 194

# RESULTS OF ANALYSIS Page 3 of 3

Client:

GeoSyntec Consultants, Inc.

**Client Sample ID:** 

Method Blank

**Client Project ID:** 

Ascon LF/SB0202 / 31H

CAS Project ID: P2401446

CAS Sample ID: P040709-MB

### **Tentatively Identified Compounds**

Test Code:

EPA TO-15

Instrument ID:

Tekmar AUTOCAN/HP5972/HP5890 II+/MS2

Analyst:

Aristotle Bragasin

Sampling Media:

Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/9/04

Volume(s) Analyzed:

1.00 Liter(s)

D.F. = 1.00

GC / MS	Compound Identification	Concentration	Data
Ret. Time		μg/m³	Qualifier
	No Compounds Detected		

#### Columbia Analytical Services, Inc. Sample Acceptance Check Form

			Sa	mple Acceptance Che	ek Form					
Client:	GeoSyntec Cons	sultants	, Inc.		Vork order:	<u>P</u> 2	2401446	<u>-</u>		
	Ascon LF/SB02									
S	ample(s) receive	d on:	7/7/04	Date opened:	7/7/0		by:	SM		
<i>lote:</i> This	form is used for <u>all</u> san	ples rece	ived by CAS. The use	of this form for custody seals is	strictly meant to ind	icate p	resence/absenc	e and not as a	in indication	on of
ompliance	or nonconformity. Th	ermal pres	servation and pH will o	nly be evaluated either at the rec	quest of the client or	as req	uired by the me	thod/SOP.  Yes	No	N/A
									$\boxtimes$	
1	Were custody sea	ls on o	utside of cooler/Bo	x?		_				$\boxtimes$
	Location of sea	l(s)?				S	ealing Lid?			
	Were signature	and dat	e included?							[X]
	Were seals inta-	ct?								$\boxtimes$
	Were custody sea	ls on ou	itside of sample co	ntainer?					$\boxtimes$	
	Location of sea	l(s)'?				S	ealing Lid?			$\boxtimes$
	Were signature	and dat	e included?							$\boxtimes$
	Were seals inta									$\boxtimes$
2	Were sample con	ntainers	properly marked	with client sample ID?				$\boxtimes$		
3	Did sample cont	ainers a	rrive in good cond	ition?				$\boxtimes$		
4			papers used and fill					$\boxtimes$		
5	Did sample cont	ainer la	ibels and/or tags ag	gree with custody papers?				X		
6	Was sample volu	ıme rec	eived adequate for	analysis?				$\boxtimes$		
7	Are samples with	in spec	ified holding times	?				$\boxtimes$		□ ⊠
8	Was proper temp	oeratur	e (thermal preserva	tion) of cooler at receipt a						
		C	Cooler Temperature		°C					
			Blank Temperature		°C				$\boxtimes$	П
9	Is pH (acid) pres	ervatio	n necessary, accor-	ding to method/SOP or Cl	ient specified in	forma	ation?			☑
				ed samples are <b>pH</b> (acid)	oreserved?					X
	Were <b>VOA via</b> l	<u>s</u> check	ed for presence/abs	sence of air bubbles?			1. 5.0			X
	Does the client/			ne analyst check the samp	le pH and <u>if nece</u>	essary	galter it?			X
10	Tubes:		e tubes capped and							X
			ey contain moisture							X X
11	Badges:			capped and intact?						X
		Are d	ual bed badges sep	arated and individually ca	pped and intact'?					
	Lab Sample ID		Required	рн	VOA Headspa	ce	Re	ceipt / Pres	ervation	
	Lab Sample 10		рН	(as received, if required)	(Presence/Absen	ce)		Comme	nts	
P24014	46-001				NA					
P24014					NA					
									<del></del>	
<b></b>										
Expla	in any discrepancie	es: (incl	ude lab sample ID	numbers):						

7/8/04 4:43 PM

Page 1 of 1

# Air Quality Laboratory

2665 Park Center Drive, Suite D Simi Valley, California 93065 Phone (805) 526-7161

Columbia Analytical Services \*\*

Chain of Custody Record Analytical Service Request

COC #13-7/03 SHOLES Additional Comments (e.g., preservative or specific instructions) Cooler / Blank Comments Temp CAS Project No. Sulf organization of the English of the Sulf of the Su Ū Õ 15.08 Time: 111 Yellow Copy: Retained by Client Time: Eme: 4-61-04 Analysis Date: Date: Date: 10 m L. MORLE } ⊘ S) X Sample Volume (Liters) 0 D となると x 00537 Flow-Controller (Serial#) xcx58 BERKH! Received by: (Signature) Received by: (Signature) Received by: (Signature) Kenn Container ID (Serial #) Sumpling Location CO520 SBBBB-31H M18-10-2085 20110 いののなるといれて P.O. #/Billing Information ASCOTA LF 5:10 PM 1(1,20) Project Number Ġ SACRE Project Name Type of Sample 大フレム (805) 526-7270 5 Time: me. 4 7-7-64 White Copy: Accompanies/Samples Lab Sample No. 27.0 SLOC MAIN ST. 4150 HUNTINGTON BEACH, OR 92648 Fax (744) 969-0820 Date: Date! Oate: ととというはるころ Email IN CORK COOL @ GEOSTANDO CON Time Collected 3.10 **元**第 Senature Lacter \$0.10.10 Collector ないない。は An Employee - Owned Company REARDON Phone (1-1000) (Signature Relinquished by: (Signatur ない。マイストンの Client Sample 1D SF-5-72-02 Des. Relinguibhed by: (6 Client/Address Religantished 出る一個 Contact

16

#### CE Schmidt, Ph.D. Environmental Consultant

#### ATTACHMENT C

#### LABORATORY REPORTS

Phases I, II, IV, and VIII- Odor Testing



## Odor Science & Engineering, Inc. 1350 Blue Hills Avenue, Bloomfield, CT 06002

(860) 243-9380 Fax: (860) 243-9431

June 1, 2004

Mike Reardon, P.E. GeoSyntec Consultants 2100 Main Street, Suite 150 Huntington Beach, CA 92648 <u>Mreardon@GeoSyntec.com</u> cc: <u>SCHMIDTCE@aol.com</u>

RE: Odor Analysis - ASCON Project GeoSyntec Project No. SB0202-31 OS&E Project No. 1413-M-00

Dear Mike:

This letter presents the results of the recent odor panel analyses conducted by Odor Science & Engineering, Inc. (OS&E) for GeoSyntec as part of the ASCON Landfill project. Odor emission samples were collect by project field personnel during the weeks of March 15<sup>th</sup> and May 3<sup>rd</sup>, 10<sup>th</sup> & 24<sup>th</sup>, 2004. The samples were collected into preconditioned 6 liter Tedlar gas sampling bags supplied by OS&E. Each day following sample collection, the bags were shipped via overnight delivery service to OS&E's Olfactory Laboratory in Bloomfield, CT. With the exception of the samples collected on May 25<sup>th</sup>, 2004, all sample shipments arrived with the samples intact matching with the accompanying chain of custody. On May 25<sup>th</sup>, a total of 9 samples were collected and sent for odor analysis, however, the shipment arrived containing only 8 samples and there was no chain of custody accompanying this set of samples. This was the only discrepancy between samples shipped and received.

Upon arrival each day the samples were analyzed by dynamic dilution olfactometry using a trained and screened odor panel of 8 members. The odor panelists were chosen from OS&E's pool of panelists from the Greater Hartford area who actively participate in ongoing olfactory research and represent an average to above average sensitivity when compared to a large population. The samples were quantified in terms of dilution-to-threshold (D/T) ratio and odor intensity in accordance with ASTM Methods E-679-91 and E-544-99, respectively. The odor panelists were also asked to describe the odor character of the samples at varying dilution levels. The odor panel methodology is further described in Attachment A.

The results of the odor panel tests are presented in the attached Table 1.

We appreciate the opportunity to be of service to GeoSyntec on this project. Please feel free to call me if you have any questions concerning these results.

Sincerely,

**ODOR SCIENCE & ENGINEERING, INC.** 

Marthe O'Brin

Martha O'Brien Principal

## Table 1. Results of dynamic dilution olfactometry analysis – March & May, 2004 GeoSyntec: Ascon Landfill OS&E Project No. 1413-M-00

	Sample		Odor		s' Law ants <sup>(2)</sup>	Odor Character <sup>(3)</sup>
Date	ID	Time	Conc. D/T <sup>(1)</sup>	a	b	
3/15/04	PNL-13-12DHF	1146	2,295	0.71	0.74	petroleum, gasoline, #2 oil, coal gas, peppery, sharp, kitty litter
3/15/04	PNL-15-12DHF	1519	385	0.71	0.61	oily, petroleum, No. 2 oil, turpentine, kerosene, , coal tar, spicy
3/15/04	PNL-15-100DHF	1534	8			stale, plastic, exhaust, oil
3/15/04	PNL-2-15-DHF	0917	11			stale, sour, rotten, oily, exhaust
3/16/04	PNL-5a-11DHF	0953	41	0.60	0.69	oily, petroleum, metallic, rotten wood, pine, earthy, fresh cut grass, sewage, sharp, chemical, plastic
3/16/04	PNL-12-100DHF	1134	9			oily, kerosene, mushrooms, stale, rubber, plastic
3/16/04	PNL-12-21DHF	1246	1,166	0.62	0.67	oily, petroleum, #2 fuel oil, turpentine, rotten, spicy, litter box, sharp
3/16/04	PNL-3-21DHF	1521	8,313	0.62	0.89	oily, petroleum, sulfur, stove gas, creosote, litter box, natural gas
5/03/04	PNL-1-15DHF	0843	2,958	0.66	0.74	oily, petroleum, gasoline, smoky, burnt, sour, rancid meat, pine
5/03/04	PNL-14-21DHF	1158	25,250	0.84	0.55	oily, petroleum, natural gas, cat urine, smoky
5/03/04	PNL-07-21DHF	1449	4,539	0.71	0.74	sour, oily, petroleum, gasoline, natural gas, cat urine, rancid meat
5/03/04	PNL-07-21RDHF	1454	4,949	0.63	0.67	oily, petroleum, gasoline, cat urine, rancid meat
5/03/04	PNL-07-B-DHF	1530	7			sour, plastic, paint, exhaust, electrical wires
5/04/04	PNL-10A-B-DHF	1615	1,274	0.35	0.84	oily, petroleum, smoky, stove gas, cat urine
5/04/04	PNL-11-12DHF	1215	385	0.63	0.61	oily, petroleum, shoe polish, varnish, wood floor cleaner, iodine, onion, epoxy, rubberbands
5/05/04	PNL-6-15-DHF	0825	275	0.56	0.97	oily, petroleum, gasoline, smoky, cat litter, rye bread, rotten eggs
5/05/04	PNL-9-15-DHF	1021	4,602	0.71	0.79	oily, petroleum diesel fuel, gasoline, motor oil, smoky, sewery
5/05/04	PNL-9-15-RDHF	1023	5,018	0.65	0.76	oily, petroleum, gasoline, diesel fuel, smoky, turpentine, varnish
5/05/04	PNL-8-18-DHF	1349	4,539	0.78	0.71	oily, petroleum, gasoline, diesel fuel, moldy, damp cellar, cleaning fluid, pungent, dead flowers
5/10/04	PNL-BA1-17SF4	1630	163	0.74	0.67	turpentine, pesticide, spicy, rotten, shoe polish, petroleum
5/11/04	PNLBA-8-17-SFU	1150	979	0.60	0.84	pesticide, turpentine, rotten lemons, cleaning fluid, pine needles, cat urine, floral, gasoline, floor polish, varnish
5/11/04	PNLBA8-17-SFC1	1244	1,265	0.58	0.78	pesticide, rotten lemons, earthy, dirt, greenhouse, pine needles, turpentine, cat urine, floral, floor polish
5/11/04	PNLBA8-17-SFC2	1355	1,166	0.62	0.79	pesticide, turpentine, rotten lemons, gasoline, pine needles, floral, solvent
5/11/04	PNLBA8-17-SFC3	1454	1,265	0.59	0.68	pesticide, turpentine, rotten lemons, greenhouse, dried leaves, dirt, pine needles, floral, gasoline, floor polish, varnish

## Table 1 continued. Results of dynamic dilution olfactometry analysis – May, 2004 GeoSyntec: Ascon Landfill OS&F Project No. 1413-M-00

OS&E Project No. 1413-M-00									
	Sample		Odor			Odor Character <sup>(3)</sup>			
		Conc.	Constants <sup>(2)</sup>						
Date	ID	Time	D/T <sup>(1)</sup>	a	В				
5/11/04	PNLBA8-17-SFC4	1555	1,265	0.59	0.68	pesticide, gasoline, oily, sulfur, pine needles, cat urine, floral, rotten lemons, earthy, floor			
						polish			
5/11/04	PNLBA8-17-SFC5	1630	1,265	0.65	0.69	pesticide, pine needles, musty, sweaty, floral, gasoline, greenhouse, floor polish, varnish			
5/12/04	PNLBA8-17-SFC6	1015	458	0.55	0.58	spicy, turpentine, pesticide, shoe polish, pine, cedar, wood resin, rotten petroleum			
5/13/04	PNL-BA8-17-SFC7	1210	193	0.65	0.77	pesticide, cleaning fluid, floor stripper, solvent, floral, varnish, pine needles, green leaves, gasoline, petroleum			
5/13/04	PNLBA1-17-SFC1	1417	25	0.52	0.73	pesticide, antiseptic, cleaning fluid, floor stripper, musty, earthy, wet soil			
5/13/04	PNLBA3-X-SFU	1511	193	0.63	0.73	pesticide, oily, gasoline, garage, petroleum, new rubber, pine needles, pine cleaner, green house, disinfectant, burnt			
5/13/04	PNLBA3-X-SFC	1603	126	0.74	0.54	pesticide, antiseptic, pine needles, floral, green house, floor stripper, varnish, petroleum, gasoline, burnt rubber			
5/13/04	PNLBA3-100-SFC	1615	<5			Plastic, car exhaust, moldy			
5/14/04	PNLBA11-X-SFU	0816	126	0.54	0.79	sharp, styrene, ammonia, bad onions, gasoline, oily, kerosene, hot lead, smoky, mothballs			
5/14/04	PNLBA11-X-SFC	0914	49	0.40	0.88	glue, iodine, mothballs, kerosene, solvent, styrene, airplane glue, musty, natural gas, smoky, burnt			
5/14/04	PNLBA13-X-SFU	1017	193	0.78	0.72	oily, petroleum, gasoline, pine tar, pine tree, cleaning fluid, solvent, paint, floor stripper			
5/14/04	PNLBA13-X-SFC	1112	13	0.72	0.85	Wet caulk, powdery, floor cleaner, pine tar, pine trees, pesticide			
5/14/04	PNLBA06-X-SFU	1220	106	0.76	0.54	pesticide, pine trees, petroleum, oily, gasoline, floral, antiseptic			
5/14/04	PNLBA06-X-SFC	1307	23	0.66	0.69	pesticide, antiseptic, pine trees, gasoline, ammonia, greenhouse, solvent			
5/14/04	PNLBA07-X-SFU	1405	89	0.70	0.67	pesticide, greenhouse, pine tar, pine trees, antiseptic, gasoline, burnt rubber, petroleum			
5/14/04	PNLBA07-X-SFC	1456	49	0.66	0.64	pesticide, gasoline, pine trees, oily, petroleum, bleach			
5/24/04	PNL-L-5A-SFU		97	0.53	0.75	oily, petroleum, kerosene, gasoline, turpentine, wet cement, rotten eggs, cat urine, floral, earthy, tar			
5/24/04	PNL-L-5A-SFC1	1150	89	0.59	0.75	pesticide, oily, gasoline, kerosene, varnish, tar, floor cleaner, floral, earthy, smoky			
5/24/04	PNL-L5A-SFC2	1210	25	0.51	0.80	sour, oily, paste, plastic, paint, varnish, turpentine, wet cardboard, eraser			
5/24/04	PNL-L4B-SFU	1308	211	0.51	0.70	Oily, pesticide, petroleum, gasoline, kerosene, sulfur, oily exhaust, wet sneakers			
5/24/04	PNL-L4B-SFC2	1351	13	0.61	0.89	gasoline, rubber tires, plastic, tar, new linoleum			
5/24/04	PNL-L4A-SFU	1521	250	0.54	0.72	Oily, gasoline, cat urine, turpentine, tar, rotten vegetables, burnt sulfur			
5/24/04	PNL-L4A-SFC2	1615	89	0.60	0.79	petroleum, kerosene, gasoline, oily, varnish, cat urine, cadaverous, pesticide, burnt tar, wet bricks			
5/24/04	PNL-L4A-SFC2	1620	82	0.71	0.47	Oily, petroleum, exhaust, cat urine, wine, tar, pesticide, chemical			
5/25/04	PNL-L5B-SFU	0905	451	0.30	0.87	sewage, rotten eggs, sulfur, fecal, pig farm, gasoline, petroleum, H <sub>2</sub> S			
5/25/04	PNL-L5B-SFC1	1010	386	0.36	0.86	Rotten eggs, sulfur, petroleum, gasoline, sewage, pig farm, fecal			
5/25/04	PNL-L5B-SFC2	1005	89	0.47	0.74	oily, petroleum, gasoline, sulfur, stove gas, rotten, garbage			
5/25/04	PNL-L3B-SFU	1103	193	0.58	0.67	petroleum, cat urine, sour, rotten, stove gas, gasoline			

Table 1 continued. Results of dynamic dilution olfactometry analysis – May, 2004										
GeoSyntec: Ascon Landfill										
OS&E Project No. 1413-M-00										
	Sample		Odor		s' Law	Odor Character <sup>(3)</sup>				
	1	1	Conc.	Constants <sup>(2)</sup>						
Date	ID	Time	D/T <sup>(1)</sup>	a	В					
5/25/04	PNL-L3B-SFC1	1155	137	0.38	0.93	rotten, petroleum, sulfur, urine, turpentine, gasoline				
5/25/04	PNL-L3B-SFC2	1140	16	0.49	0.99	gasoline, petroleum, plastic, mushroom, rotten, shoe polish, paint				
5/25/04	PNL-L200-SFU	1313	9			plastic, stale mushroom, kerosene, paint, melting wax				
5/25/04	PNL-L3A-SFU	1445	163	0.43	0.83	petroleum,, gasoline, waxy crayon, floor wax, shoe polish				
5/25/04	PNL-L3A-SFC1	1541	115	0.28	0.97	gasoline, rotten, stove gas, petroleum				
5/25/04	PNL-L3A-SFC2	1546	63	0.40	0.94	shoe polish, petroleum, rotten, gasoline				
5/26/04	PNL-L2B-SFU	1110	583	0.32	0.88	petroleum, oil, gasoline, shoe polish, kitty litter				
5/26/04	PNL-L2A-SFC1	1150	210	0.47	0.83	rotten, petroleum, gasoline, kerosene, sour, varnish, floor wax				
5/26/04	PNL-L2B-SFC2	1219	32	0.47	0.64	mushroom, musty, wet basement, wet earth, coal, diesel fuel, gasoline				
5/26/04	PNL-L1B-SFU	1331	2,123	0.40	0.88	gasoline, diesel oil, rotten, sulfur, petroleum				
5/26/04	PNL-L1B-SFC1	1424	106	0.37	0.88	musty, kerosene, gasoline				
5/26/04	PNL-L1B-SFC2	1418	16	0.48	0.92	musty, moldy, putty, soapy, grease, fat, waxy, sour coconut milk, sewage, plastic				
5/26/04	PNL-L2A-SFU	1531	2,310	0.45	0.84	oil, gasoline, petroleum, rotten, rotten meat, coal, tar				
5/26/04	PNL-L2A-SFC1	1623	163	0.32	0.84	rotten, petroleum, kerosene, turpentine, shoe polish, pine needles				
5/26/04	PNL-L2A-SFC2	1616	30	0.68	0.74	gasoline, musty, earthy, moldy, wet basement, sewage, floor polish, dirty water				
5/26/04	PNL-L2A-SFUR0	1530	1,947	0.43	0.97	petroleum, gasoline, sulfur, oil				
5/27/04	PNL-L1A-SFU	0750	194	0.62	0.88	eucalyptus, turpentine, rotten, earthy, petroleum, gasoline, sour				
5/27/04	PNL-L1A-SFC1	0855	149	0.64	0.81	eucalyptus, turpentine, varnish, gasoline, sour, exhaust				
5/27/04	PNL-L1A-SFC2	0830	22	0.56	0.87	pesticide, turpentine, eucalyptus, kerosene, gasoline, paint, varnish				

- 1. D/T = dilutions-to-threshold
- 2. Stevens' Law correlates odor concentration ( C ) and odor intensity (I): I = aC<sup>b</sup>. The constants a and b were determined by regression analysis based on the intensity ratings of the odor panel at varying dilution levels. I = 0-8 (based on the n-butanol intensity scale), C = odor concentration (D/T) typical of ambient odor levels.
- 3. as described by odor panelists at various dilution levels.

Odor Science & Engineering, Inc. 1350 Blue Hills Avenue Bloomfield, CT 06002 Phone: (860) 243-9380 Fax: (860) 243-9431 www.odorscience.com

## ATTACHMENT A Odor Science & Engineering, Inc. Odor Panel Methodology

#### Measurement of Odor Levels by Dynamic Dilution Olfactometry

Odor concentration is defined as the dilution of an odor sample with odor-free air, at which only a specified percent of an odor panel, typically 50%, will detect the odor. This point represents odor threshold and is expressed in terms of "dilutions-to-threshold" (D/T).

Odor concentration was determined by means of OS&E's forced choice dynamic dilution olfactometer. The members of the panel who have been screened for their olfactory sensitivity and their ability to match odor intensities, have participated in on-going olfactory research at OS&E for a number of years.

In olfactometry, known dilutions of the odor sample were prepared by mixing a stream of odor-free air with a stream of the odor sample. The odor-free air is generated in-situ by passing the air from a compressor pump through a bed of activated charcoal and a potassium permanganate medium for purification. A portion of the odor free air is diverted into two sniff ports for direct presentation to a panelist who compares them with the diluted odor sample.

Another portion of the odor-free air is mixed in a known ratio with the odor from the sample bag and is then introduced into the third sniff port. A panelist is thus presented with three identical sniff ports, two of which provide a stream of odor-free air and the third one a known dilution of the odor sample. Unaware of which is which, the panelist is asked to identify the sniff port which is different from the other two, i.e., which contains the odor. The flow rate at all three nose cups is maintained at 3 liters per minute.

The analysis starts at high odor dilutions. Odor concentration in each subsequent evaluation is increased by a factor of 2. Initially a panelist is unlikely to correctly identify the sniff port which contains an odor. As the concentration increases, the likelihood of error is reduced and at one point the response at every subsequently higher concentration becomes consistently correct. The lowest odor concentration at which this consistency is first noticed, represents the **detection odor threshold** for that panelist.

As the odor concentration is increased further in the subsequent steps, the panelist becomes aware of the odor character, i.e. becomes able to differentiate the analyzed odor from other odors. The lowest odor concentration at which odor differentiation first becomes possible, represent the **recognition odor threshold** for the panelist. Essentially all of OS&E's work is done with recognition odor threshold. By definition the threshold odor is equal to 1 D/T (i.e. the volume of odorous air after dilution divided by the volume before dilution equals one).

The panelists typically arrive at threshold values at different concentrations. To interpret the data statistically, the geometric mean of the individual panelist's thresholds is calculated.

The olfactometer and the odor presentation procedure meet the recommendations of ASTM Standard Practice for Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series of Limits (ASTM E679-91). The analysis will be carried out in the OS&E Olfactory Laboratory in Bloomfield, Connecticut.

#### **Odor Intensity**

Odor intensity is determined using reference sample method with n-butanol as the reference compound (ASTM Method E-544-99). The n-butanol odor intensity scale is based on n-butanol vapor as odorant at eight concentrations. The concentration increases by a factor of two at each intensity step, starting with approximately 15 ppm at step 1.

Odors of widely different types can be compared on that scale just like the intensities of the lights of different colors can be compared to the intensity of standard, e.g. white light. Odor character and hedonic tone are ignored in that comparison. Odor intensities are routinely measured as part of the dynamic dilution olfactometry measurements. The n-butanol vapor samples are presented to the panelists in closed jars containing the standard solutions of n-butanol in distilled water. The vapor pressure above the butanol solutions corresponds to the steps on the n-butanol scale. To observe the odor intensity, a panelist opens the jar and sniffs the air above the liquid. The panelist then closes the jar so that the equilibrium vapor pressure of butanol can be re-established before the next panelist uses the jar. The odor in the jar is compared with unknown odor present at the olfactometer sniff port.

The relationship between odor concentration and intensity can be expressed as a psychophysical power function also known as Steven's law (Dose-Response Function). The function is of the form:

 $I = aC^b$ 

where:

I = odor intensity on the butanol scale C = the odor level in dilution-to-threshold ratio (D/T) a,b = constants specific for each odor

The major significance of the dose-response function in odor control work is that it determines the rate at which odor intensity decreases as the odor concentration is reduced (either by atmospheric dispersion or by an odor control device).

Odor emissions are used as input to an odor dispersion model, which predicts odor impacts downwind under a variety of meteorological conditions. Whether or not an odor is judged objectionable depends primarily in its intensity. The dose-response constants are used to convert predicted ambient odor concentration to intensity levels. OS&E experience has shown that odors are almost universally considered objectionable when their intensity is 3 or higher on the 8-point n-butanol scale. In general, the lower the intensity, the lower the probability of complaints.

#### **Odor Character Description**

Odor character refers to our ability to recognize the similarity of odors. It allows us to distinguish odors of different substances on the basis of experience. We use three types of descriptors, general such as "sweet", "pungent", "acrid", etc. or specific references to its source such as "orange", "skunk", "paint", "sewage", etc., or to a specific chemical, e.g. "methyl mercaptan", "butyric acid", or "cyclohexane". In the course of the dynamic dilution olfactometry measurements, the odor panelists are asked to describe the character of the odors they detect.



### Odor Science & Engineering, Inc.

1350 Blue Hills Avenue, Bloomfield, CT 06002 (860) 243-9380 Fax: (860) 243-9431

July 7, 2004

Mike Reardon, P.E. GeoSyntec Consultants Huntington Beach, CA <u>Mreardon@GeoSyntec.com</u> ce: <u>SCHMIDTCE@aol.com</u>

RE: Odor Analysis June 30th, July 1<sup>st</sup> & 2<sup>nd</sup>, 2004 – ASCON Project

GeoSyntec Project No. SB0202-31H OS&E Project No. 1413-M-00

Dear Mike:

This letter presents the results of the recent odor panel analyses conducted by Odor Science & Engineering, Inc. (OS&E) for GeoSyntec as part of the continuation of the ASCON project. A total of fifteen (15) odor emission samples were collect by project field personnel during the week of June 28<sup>th</sup>, 2004. The samples were collected into preconditioned 6 liter Tedlar gas sampling bags supplied by OS&E. Each day following sample collection, the bags were shipped via overnight delivery service to OS&E's Olfactory Laboratory in Bloomfield, CT. All samples arrived intact under chain of custody requesting sensory analysis.

Upon arrival the samples were analyzed by dynamic dilution olfactometry using a trained and screened odor panel of 8 members. The odor panelists were chosen from OS&E's pool of panelists from the Greater Hartford area who actively participate in ongoing olfactory research and represent an average to above average sensitivity when compared to a large population. The samples were quantified in terms of dilution-to-threshold (D/T) ratio and odor intensity in accordance with ASTM Methods E-679-91 and E-544-99, respectively. The odor panelists were also asked to describe the odor character of the samples at varying dilution levels. The odor panel methodology is further described in Attachment A.

The results of the odor panel tests are presented in the attached Table 1.

We appreciate the opportunity to be of service to GeoSyntec on this project. Please feel free to call me if you have any questions concerning these results.

Sincerely,

**ODOR SCIENCE & ENGINEERING, INC.** 

Marthe Krim

Martha O'Brien Principal

	Table 1. Results of dynamic dilution olfactometry analysis – June/July, 2004  GeoSyntec: Ascon Landfill										
	OS&E Project No. 1413-M-00										
	Sample	1	Odor			Odor Character <sup>(3)</sup>					
			Conc.	Constants <sup>(2)</sup>							
Date	ID	Time	D/T <sup>(1)</sup>	a	b						
6/28/04	PNL-F5-13.5-0	09:28	58	.56	.80	smoky, petroleum, chemical, solvent, asphalt, stove gas, kerosene, medicinal					
6/28/04	PNL-F4-15-0	13:58	2,703	.63	.66	fuel oil, kerosene, petroleum, diesel, rotten onions, burning trash					
6/28/04	SF-BLK-0	14:06	11			plastic, wet paper					
6/30/04	PNL-F19-4-0	08:25	82	.60	.69	smoky, petroleum, kerosene, chemical, gasoline, oily, pine tar, candle wax					
6/30/04	PNL-F19-10-0	09:04	825	.46	.73	oily, chemical, kerosene, paint, pesticide, garbage, rubber, nail polish remover, sharp					
6/30/04	PNL-F1-13-0	11:10	1,894	.61	.60	sour, chemical, rotten onions, natural gas, gasoline, burnt wood, pesticide, shoe polish, oily, burnt					
6/30/04	PNL-F1-13-0R	11:20	2,132	.59	.64	smoky, oily, chemical, kerosene, natural gas, gasoline, shoepolish, pesticide, sharp, garbage					
6/30/04	PNL-F75-1-0	15:19	10			earthy, plastic					
7/1/04	SF-STY1-U-0	09:34	45	.45	.85	smoky, burnt, oily, petroleum, kerosene, diesel					
7/1/04	SF-STY1-U-0R	09:45	49	.52	.96	smoky, burnt, sour, gasoline, kerosene, styrene, burnt wood					
7/1/04	SF-STY2-U-0	10:13	211	.60	.81	sour, rotten, garbage, vomit, burnt match					
7/1/04	SF-STY1-C1-0	11:04	35	.76	.82	sour, smoky, kerosene, oily, shoe polish, mothballs					
7/1/04	SF-STY2-C1-0	11:35	707	.57	.87	H <sub>2</sub> S, sour, sulfur, sewage					
7/1/04	SF-STY1-C2-0	13:05	23	.58	.86	sour, solvent, shoe polish, floor wax, paint, smoky, burnt, styrene					
7/1/04	SF-STY2-C2-0	13:10	15	.54	.89	sour, metallic, oily, wet cardboard, burnt rubber					

<sup>1.</sup> D/T = dilutions-to-threshold

<sup>2.</sup> Stevens' Law correlates odor concentration ( C ) and odor intensity (I): I = aC<sup>b</sup>. The constants a and b were determined by regression analysis based on the intensity ratings of the odor panel at varying dilution levels. I = 0-8 (based on the n-butanol intensity scale), C = odor concentration (D/T) typical of ambient odor levels.

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